

UNITED NATIONS DEVELOPMENT PROGRAMME

**LANDSCAPE-SCALE CONSERVATION OF THE ENDANGERED TIGER AND
RHINO POPULATIONS IN AND AROUND CHITWAN NATIONAL PARK**

TIGER-RHINO CONSERVATION PROJECT

Project Number: NEP/00/G35, NEP/01/H01 (UNF) and NEP/00/005 (TRAC)



REPORT OF THE FINAL EVALUATION MISSION

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August 2007

ACRONYMS AND TERMS

Interbank exchange rate at the time of the evaluation was US\$ 1 to NRs 71 (Nepalese Rupees).

BFC	Barandabhar Forest Corridor
CFUG	Community Forest User Group
DAG	Disadvantaged Group
GEF	Global Environment Facility
ICIMOD	International Centre for Integrated Mountain Development
IUCN	International Union for Conservation of Nature and Natural Resources
NTNC	National Trust for Nature Conservation
CNP	Chitwan National Park
TRCP	Tiger-Rhino Conservation Project
UNDP	United Nations Development Programme
UNEP	United Nations Environment Programme
UNF	United Nations Foundation
WWF	World Wide Fund for Nature

EXECUTIVE SUMMARY

This Final Evaluation of the Tiger-Rhino Conservation Project was conducted during the period 17-29 April 2007 by a team of one international and two national consultants. The Evaluation was undertaken almost one year after the end of the Project in order to review its sustainability following the end of donor support.

The approach was based on reviewing relevant reports and studies generated by the Project, meeting a wide range of stakeholders, including Project partners, and visiting a range of initiatives and community-based groups in the Project area. The evaluation was evidence-based, using the logical framework for assessing and rating achievements, and participatory in order to build consensus on lessons learnt and future priorities. During the course of the mission interim findings were discussed with UNDP and the National Trust for Nature Conservation, which executed the Project for the Government of Nepal. Preliminary findings were presented to members of the Tripartite Review Group, including the Government of Nepal, and other stakeholders at a meeting on 27th April, following which this report was drafted, reviewed by key stakeholders and finalised.

In summary, the Project has had a profound impact on the future of the Barandabhar Forest, as an ecological corridor, and communities dependent on its natural resources for much of their livelihoods. It has provided the impetus to reverse a scenario of a deteriorating environment coupled with increasing poverty, using a wide range of measures to establish and enhance the capacity of communities to conserve biodiversity within the Corridor while reducing dependency on its natural resources through provision of alternative means of livelihood. Importantly, to be confirmed with the passage of more time and experience, the Project provides some preliminary evidence that biodiversity can be conserved and poverty alleviated in this Corridor through an integrated approach to conservation and development. Such evidence includes:

- good signs of regeneration of forest in the Corridor, based on survey results;
- initial signs of increasing biodiversity, in terms of species diversity and sizes of breeding populations of endangered species (rhinoceros and tiger); and
- improved livelihoods among at least 51% of the 3,500 households targeted for the introduction of a wide range of income-generating activities. This represents 10% of the 17,795 households within the Project area. (Note that improvements in livelihoods have not been quantified and compared with the available baseline socio-economic data.)

The key to the Project's achievements is the empowerment of local communities by instituting appropriate means of governance and resourcing members with relevant skills, particularly those who are poor and from disadvantaged groups. It must be recognised, however, that the status of the Corridor at the end of this Project is inevitably fragile and unstable in ecological terms with respect to its biodiversity and in socio-economic terms with respect to its local communities. The balance can be tipped either way, depending on the right policies being put in place and the extent to which institutional structures are consolidated and income-generating activities replicated among the entire community over the next 5-10 years.

Various aspects of the Project are rated as follows:

- **Implementation approach** is assessed as **marginally satisfactory**.
- **Stakeholder participation** is assessed as **marginally satisfactory**.
- **Monitoring and evaluation** is assessed as **marginally unsatisfactory**.
- **Achievement of the Project's objectives**, in terms of its **overall development objective**, is assessed as **satisfactory**.
- **Sustainability** of the Project is assessed as **marginally satisfactory**.

Ratings are justified in the relevant sections of this report and more detailed ratings of Project objectives and outputs can be found in Annex 4. It should be noted that the absence of repeat surveys, especially socio-economic, to assess progress against 2002 baseline data constrains this Final Evaluation, which as a result may have underestimated some of the achievements.

The Project's achievements include: much improved levels of biodiversity within the Corridor, as evident from the regenerating vegetation and increasing abundance of wildlife; greater environmental awareness, especially within all 47 government schools in the Project area; improved livelihoods among at least 51% of the 3,500 households targeted for introducing to a wide range of income-generating activities; a huge reduction in pressures from grazing by livestock, firewood collection and probably timber extraction and fodder collection in the core of the Corridor; and the establishment of a *living* museum, with its associated clinic in traditional medicine, to conserve Tharu culture and indigenous knowledge.

The main shortcomings include: the absence of any policy resolution regarding the management of the National Forest in the north of the Corridor; lack of enforcement of the 40 mph speed limit; which is exceeded by most traffic that travels along the Highway through the Corridor; recent limited success in reducing poaching, despite strengthening of anti-poaching operations; limited replication of income-generating activities and other initiatives; and low level of participation in decision-making and agenda-setting bodies by women and others from disadvantaged groups. The Project was also constrained by weaknesses in concept and design, which were identified by the Mid-Term Evaluation and subsequently addressed, and implementation was delayed by operational difficulties during the Maoist insurgency.

The Evaluation Team's Terms of Reference (Annex I) include 15 key questions, the responses to which form the basis of the main findings in Section 5.1. Future priorities, identified in Section 5.2, include:

- Immediate establishment of a Barandabhar Forest Conservation Committee to steer and drive forward implementation of the Management Plan and be represented on the Steering Group of the Terai Arc Landscape initiative
- No new developments, interventions or other activities until the outstanding policy for the management of the National Forest north of the Highway is developed and officially regulated.
- Some key pieces of research and assessments to inform the implementation of the Management Plan and future management directions.
- Consolidation of what has been achieved by the Project by: replicating income-generating activities; promoting the acquisition of multiple skills within households to provide families with year-round options for generating income; and addressing sustainability issues.
- Identification, implementation and enforcement of appropriate measures to control vehicles speeding along the Highway through the Corridor.

In the longer term, once the new management regime for the Corridor is firmly embedded and implementation of the Management Plan is well underway, it will be appropriate to consider longer term opportunities to enhance the role of the Barandabhar Corridor within the wider landscape of the Mahabharat Range. This might provide the Government of Nepal, in partnership with UNDP-Nepal and other donor agencies, with a further important opportunity to kick-start the process of habitat restoration and community development.

Lessons learned and recommendations are summarised in Section 6. The final lesson highlights the importance for the Government of Nepal and donors to maintain a long-term commitment to integrated conservation and development projects of this kind. It is recommended that the National Trust for Nature Conservation be invited by the Ministry of Forests & Soil Conservation and partners to facilitate the transition from the present end-of Project scenario to a new phase in which the Corridor is managed as a cohesive unit under the authority of the Barandabhar Forest Conservation Committee, in accordance with the Management Plan and a strategy and action plan that address the above priorities. This transition needs to be completed within the next six months in order to maintain the Project's momentum and the support of the local communities.

1. APPROACH TO THE EVALUATION

1. The Final Evaluation of the Tiger-Rhino Conservation¹ Project (TRCP) was conducted between 17th and 29th April 2007 by a Team of three consultants, with four days visiting the Barandabhar Forest Corridor in Chitwan District and the remaining time spent in Kathmandu meeting stakeholders and drafting this report. It was carried out approximately one year after the Project ended in April 2006, as agreed at the Tripartite Review Meeting of 16 March 2004, in order to review the functioning of the forest management regime and sustainability of the Project's impacts².
2. The approach was based on the Terms of Reference in Annex 1. Particular attention was given to assessing the sustainability of the many initiatives generated by the Project and identifying lessons learnt. Evidence was cross-checked between as many sources as possible to confirm its veracity but this was often limited by shortage of time. Details of the team's schedule and individuals or organisations met are provided in Annexes 2 and 3, respectively.
3. The Evaluation Team chose to make the evaluation as participatory as possible in order to build consensus on lessons learnt and future priorities. Interim findings were discussed with UNDP and the National Trust for Nature Conservation (NTNC)³, which executed the project for the Government of Nepal, before committing these to paper. Significant time was spent reviewing the current status of the Project with NTNC in accordance with the Immediate Objectives, Outputs and Objectively Verifiable Indicators identified in the logframe. Opportunities were taken to acknowledge, challenge and encourage NTNC and its stakeholders, as felt appropriate, during the visit to the Project area.
4. Preliminary findings of the Evaluation Team were shared with members of the Tripartite Review Group, including the Government of Nepal, UNDP Nepal and UNDP-GEF, and other key stakeholders at a meeting on 27th April. This focused on the extent to which objectives and outputs had been achieved, as well as emerging lessons and recommendations. This generated some fruitful discussion and valuable feedback, which have been taken in account when finalising this report.
5. The team has followed the *scope* of the assessment specified in the Terms of Reference in most respects, much of which is also covered by the 15 key questions that are addressed directly in the Main Findings (Section 5.2).
6. The logframe for this Project, which was finalised only after the Mid-Term Evaluation in 2003, provides the basis for assessing and rating achievements. These details are summarised in Annex 4. During the course of the Final Evaluation, it transpired that different versions of the log frame are in use by the Trust and by UNDP Nepal. It was agreed with UNDP Nepal that the Evaluation Team should use the later, Trust version because this contains additional baseline data for the Objectively Verifiable Indicators. However, the Trust version differs in a number of fundamentally significant respects that do not tally with certain of the five indicators used for verifying the three outcomes (i.e. Immediate Objectives) in the Final Progress Implementation Report of 7 July 2006. For example, one of the indicators of Immediate Objective/Outcome 1 (Critical ecosystems within Barandabhar Forest Corridor managed and restored) is: *prey species observation records increased compared to the level of 2002 record*, according to both the UNDP Nepal version of the logframe and the Progress Implementation Report. In the Trust version of the logframe, it is cited as: *prey species density (0.8 individuals per sq. km) is maintained in the bottleneck area*. In the case of such inconsistencies, the wording of the Trust version has been deleted and replaced with that from the UNDP Nepal version. This has been done transparently, using the strikeout facility, to maintain clarity (see Annex 4).

¹ This is the abbreviated title of the Project, the full title in the Project Document being: *Landscape-scale conservation of the endangered tiger and rhino populations in and around Royal Chitwan National Park*. There is some confusion regarding the short title: some documents, such as the Mid-Term Review and Terms of Reference for this Final Evaluation, use Tiger-Rhino Corridor Project. Also, the national park is now referred to as Chitwan National Park.

² This is in line with GEF Draft *Guidelines for Implementing and Executing Agencies to Conduct Terminal Evaluations*, which stipulate that Terminal Evaluations should be completed no more than 12 months after the end of a project.

³ Originally known as the King Mahendra Trust for Nature Conservation, the name of the Trust was changed in 2006 for reasons explained in Section 3.2 (35).

2. PROJECT CONCEPT AND DESIGN

7. The Project was conceived as part of a landscape-scale initiative to improve the conservation status of endangered species (notably tiger and rhinoceros) in Chitwan Valley by linking Chitwan National Park, a World Heritage site, to its surrounding natural or semi-natural habitats by means of extensions and corridors. One such opportunity is Barandabhar, reputedly the only remaining patch of forest that links forests in the National Park and, more widely, in the Siwaliks with those in the Mahabharat Range to the north. Restoration and conservation of Barandabhar Forest Corridor, according to the Project Document, would provide a migration corridor for flagship species, such as tiger and rhino, to gain access to upland and mountain habitats, particularly during the monsoon when the lowlands can be flooded.

8. The Project concept, as described above, was considered to address habitat fragmentation, one of three major challenges to conserving Asia's wild tiger and rhinoceros populations⁴ by restoring and conserving a forest corridor between remaining forests to the north and south. Furthermore, it was designed to address the other two challenges by enabling local communities to switch to alternative sources of livelihood through a wide range of income-generating initiatives.

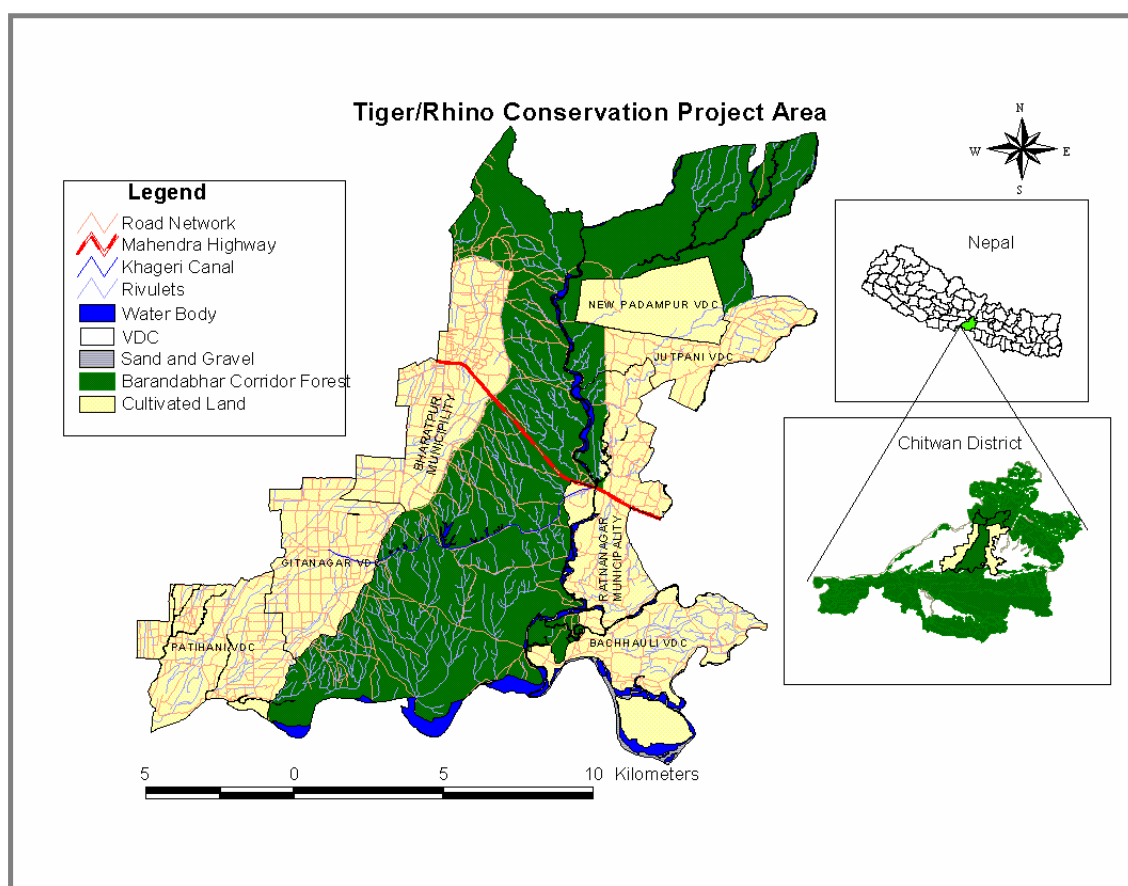


Figure 2.1 Map showing the Project area and corridor function of Barandabhar Forest

⁴ These are considered to be: (i) increasing pressure on core areas containing breeding populations, (ii) increasing isolation of populations due to habitat fragmentation; and (iii) lack of economic opportunities and incentives for poorer villagers to make a living other than through exploitation of natural resources (Dinerstein *et al.*, 1998).

9. The Project area encompasses 213 km², 45% of which is forest. It includes adjacent villages and agricultural land within five Village Development Committees and two Municipalities on either side of the Corridor to the east and west, as shown in Figure 2.1, and supports a total population of 109,316 (17,795 households), of which 50% are female and 41% are classified as belonging to disadvantaged groups. The Corridor covers 96 km² and is bisected by the Mahendra Highway, the main east-west road running the length of the country. The area to the south of the Highway is designated a Buffer Zone (61 km²) and managed by the Buffer Zone Development Council; that to the north is National Forest (35 km²) under the jurisdiction of the Department of Forests. Classification⁵ of LANDSAT images from 2002 indicates that 80% of the Corridor is forest (riverine, sal *Shorea robusta* in various stages of recovery, and open *Bombax ceiba*), 10% short grassland, 3% open scrub and 2% comprises water bodies. The last category includes Beeshazar, the second largest natural lake within Nepal's inner Terai and designated a wetland of international importance under the Ramsar Convention.

Mid-Term Evaluation

10. The Mid-Term Evaluation of the Project, undertaken in February 2003, considered that the Project concept fitted well with the primary objectives of the Government of Nepal and UNDP Nepal Policy to alleviate poverty. However, it found that the concept and design were potentially flawed on two accounts:

- Conservation of Barandabhar Forest Corridor for two-way movement of large animals (notably tigers and rhinos) was never assessed at the time of its design nor incorporated as part of the Project.
- Three years is insufficient time in which to implement a community-based conservation project.

A number of other weaknesses were identified in the Project Document, including:

- the omission of a logframe (logical framework), with verifiable indicators as a basis for evaluation, and an exit strategy, with specific measures to transfer responsibilities from NTNC to local organisations to help ensure long term sustainability;
- the lack of special provisions, other than an Education Endowment Fund, for disadvantaged groups such as the landless poor; and
- inadequate appraisal of existing and potential threats to the integrity of Barandabhar Forest.

11. Fifteen recommendations were made, including an extension to the period of Project implementation to provide adequate time for goals to be met and initiatives to become sustainable over the longer term.

UNDP/GEF Assessment Mission

12. A UNDP/GEF Assessment Mission in November 2003 focussed on these issues and recommendations raised by the Mid-Term Evaluation and, as a result, introduced some radical changes to the Project to give more emphasis to the following:

- understanding the ecological role of the corridor;
- developing a management plan for the entire corridor;
- enabling poor communities to generate incomes independent of Corridor resources; and
- generating financial sustainability and replication of income generating schemes.

A logframe was developed to reflect these changes to the Project, providing a baseline against which to evaluate future outcomes.

13. It was also agreed that an assessment of the ecological role of the Corridor should be undertaken and the Project be extended by two years, at no additional cost. The latter decision took into account the ongoing conflict in the country, which was hampering effective and timely delivery of outputs.

⁵ This classification covers only 70.1 km² of the Corridor: it does not include the area north of the *bottleneck* that extends to the Mahabharat foothills.

14. NTNC assessed the ecological significance of Barandabhar Forest Corridor and concluded that it supports small breeding populations of up to 10 tiger and approximately 30 rhinoceros, as well as a diverse avifauna (over 300 species, of which 182 species are resident) that includes migratory species which use the Corridor as a stop-over point. Direct observation of one litter of 4 tiger cubs and 5 rhinoceros calves⁶ indicates that these populations are breeding; and repeated sightings of some individuals over a three-year period (2001-2003) suggests that some reside in the Corridor. Encounters with tiger (camera traps and pug marks) and rhinoceros (direct observations and tracks) were notably fewer north of the East-West Highway than to its south but both species were recorded as far north as the foothills of the Mahabharat. The assessment drew attention to the potential bottleneck⁷ to animal movements at the northern end of the Corridor. Here the width of the Corridor and cover provided by forest has been reduced as a direct result of the relocation of Padampur Village from inside the National Park.

15. The Project's assessment was subjected to an independent review⁸. While critical of the NTNC assessment, the review concluded that Barandabhar Forest Corridor serves a multitude of ecological functions, including provision of the following:

- potential north-south altitudinal connectivity across the Himalayan landscape, specifically in the case of the Chitwan-Annapurna linkage within the Narayani Basin Ecosystem;
- existing connectivity between northern and southern sectors of the Terai Arc Landscape within Chitwan Valley, complimenting similar linkages provided by Nawal Parasi Forest to the west of the National Park and Parsa-Bara Forest to the east of Parsa Wildlife Refuge;
- existing forest connectivity, either as a forest corridor or forest fragment (stepping-stone), for movement of migratory bird species;
- potential opportunity, as a corridor, for movement of other large terrestrial species, such as leopard and clouded leopard, into and out of the Chitwan-Parsa-Valmiki ecosystem;
- breeding habitat for tigers and a potential dispersal corridor for tigers to move east and west along the southern slopes of the Mahabharat Range;
- conservation of Beeshazar, a Ramsar-designated wetland of global importance; and
- watershed protection.

Ecological functions that may not be provided by the Corridor include:

- connectivity for genetic exchange, given that there are no secondary populations to link with the Chitwan populations of either tiger or rhinoceros;
- prime habitat for rhinoceros (due to the absence of 'kans' grasslands), especially in the northern sector which is also less well suited for managing recovery of this species due to the greater potential for conflict with villages, such as new Padampur; and
- refuge during floods, for which substantive evidence is currently lacking.

Overall, evidence of the need to conserve Barandabhar Forest in its entirety was found to be compelling, particularly for the recovery of tigers along the southern flanks of the Mahabharat Range.

⁶ Status of Greater One-horned Rhinoceros in the Barandabhar Corridor Forest during 2002-2006, Nepal. Biodiversity Conservation Centre, National Trust for Nature Conservation.

⁷ Here the width of the Corridor is 2.3 km, of which 1.8 km is forested. A 300 m fringe of forest on either side is used as community forest, leaving a 1.2 km potential 'bottleneck' of forest that is more conducive to animal movements on account of its higher forest cover and lower likelihood of disturbance from people.

⁸ Validity assessment of Barandabhar Forest as an ecological corridor. Dale Miquelle (2004), Wildlife Conservation Society Asia Program.

16. EVALUATION The Project Concept is judged to be sound in terms of providing additional, restored breeding habitat for globally endangered flagship species, such as tiger and rhinoceros, and a potential corridor for tiger to disperse and re-establish itself along the southern flanks of the Mahabharat, as well as for other large mammal populations of predators (e.g. leopard species) and prey to become connected. The means of achieving this outcome, by addressing the livelihood needs of local communities depending to greater and lesser extents on the natural resources of the Barandabhar Forest Corridor, is proving to be successful to date and, thereby, validates the integrated design of this Project to conserve biodiversity through poverty reduction and empowerment of local communities and, conversely, to alleviate poverty through conservation-related initiatives (see Section 4: 41-42). Fortunately, potential flaws in the Project Concept and weaknesses in its Design were identified during the Mid-Term Evaluation and subsequently addressed by some radical changes that resulted in more focused and technically grounded outputs. While those involved in the Project's formulation have a collective responsibility for its Design and Concept, the GEF Secretariat has an important role in its technical review and, arguably, the implementing agency (GEF Nepal) and executing agency (NTNC) should have picked up on at least some of these weaknesses prior to signing the Project Document and certainly by the time of drafting the Inception Plan. Such mechanisms should have ensured more focused and effective implementation of the Project from the outset.

LESSON 1 Given that sound Concept and Design are fundamental to successful project implementation, project partners have collective responsibility for ensuring that any existing or potential weaknesses are identified and taken into proper account, penultimately prior to signing the Project Document and ultimately during the development of the Inception Plan.

LESSON 2 Three years is insufficient time in which to implement a project concerned with promoting and developing alternative means of livelihood among local communities, let alone monitor its impact. Five years should be considered a minimum, with provision for interventions over the longer term (up to 10 years) to ensure consolidation and sustainability. [An alternative approach is to make such projects less ambitious, splitting them into a series of discrete components that are phased over a longer time frame.]

RECOMMENDATION 1 Adequate provisions should be made for reviewing the Project Concept and Design prior to signing the Project Document and, subsequently, during the development of the Inception Plan.⁹

RECOMMENDATION 2 Project Concept and Design cannot be divorced from Project Implementation. They should be subject to evaluation, including ratings, to provide for a more balanced Final Evaluation¹⁰.

⁹ UNDP-GEF comments: “This is meant to be happening already – the question is why has the process not been effective in this case? In other cases it is already happening. A lot depends on capacity of and, working relationship between, project proponents, government, UNDP Country Office and UNDP-GEF Regional Technical Advisor.” The Evaluation Team suggests that additional provisions be introduced to provide confirmation that this has been undertaken.

¹⁰ It should be noted that rating of the project conceptualisation/design is specified in the *Guidelines for developing TORs for Final Evaluations*(Annex VIII) of *Measuring and Demonstrating Impact: UNDP/GEF Resource Kit (No. 2)*, 2005.

3. PROJECT IMPLEMENTATION

17. EVALUATION The implementation approach is assessed as marginally satisfactory. Implementation on the ground was generally very effective, as reflected by the numerous and wide-ranging activities successfully completed among local communities (see Section 4.2). This is particularly creditable, given that much of the work was undertaken during a period of armed insurgency. Much less satisfactory is the outstanding development of a policy for managing the forest north of the Highway, which Government partners (Ministry of Forests and Soil Conservation and its Department of Forests) did not manage to resolve within the extended life of the Project (see 38, Section 4: 43 and Section 5.1: 85.13). Ineffective internal monitoring of the Project by means of the logframe also detracts from the overall approach to implementation (see 36), as does the weak management of information generated by the Project to make it widely available and readily accessible (see 30-31).

3.1 PARTNERS AND STAKEHOLDERS

18. The Project was formulated around a partnership comprising the following agencies and their priority interests:

- Department of National Parks & Wildlife Conservation, within the Ministry of Forestry and Soil Conservation, which is focusing on landscape-scale conservation to restore fragmented habitats and maintain genetic diversity, particularly with respect to endangered species.
- NTNC with its legal mandate to support the Government's efforts in nature conservation and protected area management, combined with its 20 years of experience in community participation in the management of natural resources.
- The Global Environment Facility (GEF), with its focus on resourcing activities related directly to the conservation of globally significant biodiversity.
- United Nations Foundation (UNF) and its Biodiversity Programme that is concerned with funding initiatives that *inter alia*: communicate the importance of biodiversity to a wider audience; involve indigenous and local communities; and demonstrate linkages between conservation and sustainable development.
- UNDP and its Country Cooperation Framework which targets sustainable human development in Nepal that is pro-poor, pro-employment, pro-nature and pro-women.

19. The Project was financed at a total cost of US \$ 1,555,695 by three parties¹¹: GEF (48.2%), UNF (48.1%) and UNDP Nepal (3.7%). UNDP Nepal was the lead implementing agency, with responsibility for monitoring the Project's progress on behalf of GEF and UNF. The Ministry of Forest and Soil Conservation should have supervised NTNC's execution of the Project but, due to its limited institutional capacity, this crucial role tended to devolve on UNDP Nepal.

20. The Project was executed by the National Trust for Nature Conservation (NTNC), a non-governmental organisation, under the aegis of the Government of Nepal's Ministry of Finance and Ministry of Forests & Soil Conservation¹². Essentially, NTNC fulfilled the role of a government agency, with whom UNDP would normally engage in the execution of a project, and was required to adhere to UNDP's guidelines for nationally-executed projects. These cover most aspects of programme development and delivery, including hiring, procurement, reporting and the development of budgets and work plans.

21. A Project Steering Committee, chaired by the Member Secretary of NTNC, was due to have been established, comprising representatives from UNDP, Ministry of Finance, Ministry of Forests &

¹¹ In addition, NTNC contributed an equivalent of US \$ 217,944 in kind to the Project.

¹² UNDP-GEF comments: "[The] project was under UNDP's NGO execution modality rather than under the increasingly preferred National Execution modality."

Soil Conservation, Department of National Parks & Wildlife Conservation, Department of Forests and the media. In practice, this Committee did not function *per se*: its role of providing strategic guidance to the Project was combined with the decision-making role of the Tri-Partite Review Group, which had a similar membership but with the addition of the UNDP-GEF Regional Adviser. This widening of the role and membership of the Tri-Partite Review Group was intended to enable issues to be discussed together and, concomitantly, reduce time taken up with meetings.

22. Tri-Partite Review meetings were held annually during the period 2001-2005. These are considered to have played a critical role in guiding and determining the direction of the Project, particularly following the Mid-Term Evaluation when some radical changes were made to the Project.

23. A Working Committee was established at the local level, to which the NTNC Programme Manager reported. This was chaired by the Project Director and members comprised: Chitwan District Development Committee Chairperson, Chitwan District Forest Officer, Chitwan National Park Chief Warden, Chitwan National Park Buffer Zone Council Chairperson, Padampur Relocation Commission Chairperson and Chitwan Tourism Development Corporation Chairperson. The following points emerged from the Evaluation Team's meeting with this Committee:

- Members were unclear about their precise role, there being no Terms of reference for this Committee. In practice, they met twice a year to review and facilitate the Project's implementation.
- Members had felt more engaged with the Project since the Mid-Term Evaluation. Moreover, it was clear that ownership of the Project was high among members.
- While decisions and information concerning the Project had been fed down to this Committee from the Tri-Partite Review Group, no mechanism had been established to formally channel its experience, concerns and recommendations back up to this Group.

24. Most Project activities were implemented at the community level by engaging with a wide range of existing user groups or establishing new stakeholder groups and facilitating the development of systems for their governance. These include the many Community Forest User Groups and the large number of groups established around income-generating activities. Ownership of the Project was high among members of those community groups met by the Evaluation Team.

25. **EVALUATION Stakeholder participation is assessed as marginally satisfactory.** The Project has engaged well with a wide range of stakeholder groups among the target population, as evidenced by the high levels of ownership and commitment towards its objectives of restoring the ecological integrity of the Barandabhar Forest Corridor by reducing exploitation of its natural resources and adopting alternative means of sustaining their livelihoods. However, equivalent levels of ownership and commitment are less apparent among the Project's partners, as evident for example by the lack of concerted high level intervention by members of the Tri-Partite Review Group to address the long-outstanding need for a policy on community involvement in the management of the forest north of the Highway (see 38, Section 4: 43 and 50, Section 5.1: 85.13).

RECOMMENDATION 3 A new concerted approach is required to address the outstanding policy on the management of National Forest in the north of the Corridor. This may benefit from the services of an external facilitator and possibly a series of workshops to engage community representatives, Department of Forests, Department of National Parks & Wildlife Conservation and Ministry of Forests & Soil Conservation in appraising the different options and building consensus on the most appropriate way forward.

3.2 PROJECT MANAGEMENT

Approach to Management

26. Overall direction of the Project was the responsibility of the National Project Director, a part-time position falling within the role of the NTNC Executive Officer. The National Project Director

was accountable to the Government of Nepal and UNDP for the Project's implementation in accordance with the budget and under the guidance of the Tri-Partite Review Group. The National Project Director was supported by a Project Coordinator (referred to as Program Coordinator or Program Manager in the Project Document), whose primary role was to oversee implementation of the Project. The Project Coordinator was based at the Trust's Biodiversity Conservation Centre in Sauraha and also responsible for its management.

27. Staff engaged by the Project, many of whom continue to be based at the Biodiversity Conservation Centre, are highly motivated and committed to their work. Some of the field technicians have a wealth of professional experience, having been trained and employed originally by the Smithsonian Institution in the early 1980s during its Tiger Ecology Project. However, a number of issues were identified during the Mid-Term Evaluation, including the high numbers of staff employed by the Project, relatively high turnover of managerial and field staff, limited experience of some field staff and lack of technical back-up for technical staff engaged in research and monitoring. Clearly, as acknowledged by members of the Working Committee, efforts had been made by the Trust to reduce the overall level of staffing and ensure greater continuity. Other matters were more difficult to assess as the Project had been completed and Trust staff had moved on to other, sometimes related, work. Provision of a well qualified and experienced senior scientist based at the Biodiversity Conservation Centre to lead the science and support the technicians would have significantly enhanced the outputs of this Project, quite apart from the work and programme of the Centre.

28. The Mid-Term Evaluation raised concerns about the way in which the Project was being managed with respect to differences in perception between the Trust, which views the Project as part of its integrated programme of community-based conservation in Chitwan, and UNDP, with its requirement for rigorous accountability in implementation. The development of a logframe following the Mid-term Evaluation and its adoption in late-2003 has provided a more objective and robust basis for managing the Project. However, its original omission from the Project Document continued to dog the Project to the end as it proved to be an 'add-on' that did not sit comfortably with the existing format of the Project Implementation Report, rather than becoming an integral part of the implementation process, as highlighted in Section 1 (7).

29. Despite the effort, including several workshops, spent in producing a logframe that is complete with baseline indicators, it has been found that in many cases comparative data have not been generated to determine the status of various biodiversity and socio-economic indicators at the end of the Project. For example, there are no recent survey data with which to compare with baseline data for tree density in the bottleneck area of Barandabhar Forest Corridor, income per household within the target population and collection of fodder and timber from the Corridor. This is unfortunate not only with respect to this Final Evaluation but in terms of some of the Project's achievements potentially being underestimated¹³.

Managing Information

30. The Project has generated a huge amount of information from specific sector and topic based research and regular biodiversity monitoring activities. Research reports are held in electronic form and hard copies are kept in the library at the Biodiversity Conservation Centre; biodiversity survey data are stored electronically in a Management Information System. It appears that such information has not been disseminated widely beyond immediate partners and certainly it is not readily accessible to interested third parties *via*, for example, the Trust's website. The Trust should also seek opportunities to collaborate with universities and other research institutions for further analysis of the data. It is in the interests of all partners and stakeholders that knowledge and experience gained from this Project should be shared as widely as possible, particularly in the context of the Terai Arc Landscape initiative where this Project is breaking new ground.

¹³ UNDP-GEF comments: "*Important point but there are always cost implications to systematic M&E – to what extent can level of detail being suggested be sustained in an MSP?*" The Evaluation Team acknowledges that the scope of baseline surveys may have been overambitious for repeating towards the end of the Project. However, this needs to be addressed at the outset in designing such surveys so that outputs and outcomes can be adequately measured against appropriate benchmarks.

31. It was not possible to review the Information Management System as none of the staff present on the occasion of the Evaluation Team's visit to the Biodiversity Conservation Centre knew how to access it. While it is appreciated that this situation has arisen because the GIS/database officer left the Centre a year or more ago and has not yet been replaced, the issue would seem to be more about sustainability and the need to develop a system that is user friendly and readily accessible to any computer literate person. This item is discussed further in Section 4.2 under Output 1.1.

Financial Planning

32. The Mid-Term Evaluation reported that disbursements were behind schedule, with 36% of GEF funds, 31% of UNF and 21% of UNDP expended by the end of 2002. This was partly attributed to the insurgency, which delayed delivery of outputs and led to the length of the Project being extended. Annual amounts disbursed from each of the three funding sources are summarised in Table 3.1. This shows that 99% (US \$ 1,550,214) of the available funds from the three donors was disbursed which is very satisfactory. There has been some slight overspending of the UNF and GEF budgets which may need to be offset by the under spending of the UNDP Nepal budget.

Table 3.1 Disbursement of Project funds (US \$)

Project no. DONOR	Budget Total	DISBURSEMENTS						
		2001	2002	2003	2004	2005	2006	Total
NEP/01/H01 UNF	712,472	93,773	130,786	116,242	88,066	230,418	64,380	723,665
NEP/00/G35 GEF	750,000	90,352	183,207	183,576	165,635	129,928	-866	751,833
NEP/00/005 UNDP	103,700	604	11,871	30,008	10,395	4,291	17,546	74,716
TOTAL	1,566,172	184,730	325,865	329,826	264,097	364,637	81,060	1,550,214

Political context

33. The Royal massacre of June 2001 and the Maoist insurgency, with its strong presence in areas adjacent to the Barandabhar Forest Corridor from mid-2002 onwards, have undoubtedly had an impact on the Project. During this time and in common with other donors, UNDP adopted a policy of maintaining a low profile, being transparent, and ensuring that Project staff did not donate funds or allow Project property to be unduly used by other parties. In general, the main constraints reported by Project staff concerned the lack of freedom to move around as necessary, although it seems that the Maoists were not adverse to their activities in the field. Staff benefited from local information about Maoist movements. The overall impact was delayed implementation of activities and curtailment of some research and monitoring activities. This was one of the main reasons for extending the Project for a total of two years on a no-cost basis.

34. The main concern of the Maoists centred on the Royal patronage of the Trust, further embodied by its earlier name of King Mahendra Trust for Nature Conservation. The change in name of the Trust in October 2006 is indicative of major internal transformations that must have been ongoing during the life of the Project as the Trust came to terms with a new, less privileged political context within which it had to learn to operate. On the one hand, this may have limited the Trust's ability to deal with bureaucratic and political bottlenecks that were impeding Project implementation; on the other hand, a more level playing field between the Trust and its partners may have engendered greater respect and cooperation. There is no direct evidence in support of either of these scenarios but, with the barrier of inequality engendered by Royal patronage now removed, the Trust has a vital opportunity to strengthen and consolidate its partnerships with other national and international non-governmental nature conservation organisations. Indeed, the Trust signed a partnership agreement on 5 June 2007 with ICIMOD, IUCN, UNEP, WWF and the Ministry of Environment, Science and Technology of the Government of Nepal, which bodes well for future cooperation and collaboration. Within the context

of this Project and its aftermath, the Trust should gain membership of the Terai Arc Landscape Steering Group in order to raise and consolidate the profile of Barandabhar Corridor within this landscape-scale conservation initiative of the Government of Nepal.

3.3 MONITORING AND EVALUATION

35. Internal monitoring and review of Project activities has included the following mechanisms:

- Quarterly work plans, progress and financial reports submitted to UNDP Nepal, the financial report providing the catalyst for disbursement of funds. These reports provide the basis for UNDP Nepal, as lead implementing agency, to report quarterly to UNDP-GEF and UNF on technical progress and also to request revisions to the budget if necessary.
- Annual work plans, project and financial reports submitted to UNDP. The Annual Project Report is considered at the annual Tri-Partite Review Group meetings and provides the basis for completing the Project Implementation Report for GEF and an Annual Progress Report for UNF. The Annual Financial Report, which must be audited, is also provided to donor agencies.
- Field visits by GEF (including its Secretariat and members of its Monitoring and Evaluation Team), UNDP Nepal, UNDP-GEF and UNF consultants.
- Annual meetings of the Tri-Partite Review Group, which took policy decisions concerning the implementation of the Project. It should be noted that this Group of donor organisations and government agencies also performed the role of the Steering Committee (as explained in 21).

36. The logframe has been reviewed annually since its finalisation in October 2003 and incorporated within the Annual Project Report/Project Implementation Report. The Evaluation Team experienced a number of difficulties relating to the logframe and annual Project Implementation Report, some of which are discussed above (see 6 and 29) and/or highlighted in Annex 4. These tools were not used to maximum effect to document progress and anticipate end of Project survey requirements, as evident from the following:

- Absence of any end of Project update of the logframe.
- Lack of end of Project survey data with which to compare with baseline data¹⁴.
- Different versions of the logframe held by different agencies and inconsistencies between some of the indicators in these and those used in the Project Implementation Report.
- Lack of correlation between indicators and respective reported levels of achievement in the Project Implementation Report. For example, for Indicator 3 *Forest growing stock maintained in the BCF as per baseline data of 2002 (baseline level = 91 trees per ha)* the reported level at 30 June 2006 is all about numbers of poachers prosecuted and numbers of persons participating in anti-poaching awareness campaigns (see UNDP/GEF APR/PIR 2006 – Biodiversity, dated 7 July 2006).
- Basic reporting errors in the Project Implementation Report.

37. The principal opportunities for external monitoring and evaluation of the Project, prior to this Final Evaluation, were the Mid-Term Evaluation in February 2003 (see 10) and UNDP/GEF Assessment Mission in November 2003 (see 12). Both of these missions are considered to have played a pivotal role in identifying weaknesses in Project design and implementation and providing the grounds for radical changes that have contributed to the overall success of the Project. Moreover, the UNDP/GEF Assessment Mission was critical in defining and recommending a set of targets to be met to justify: (a) an extension to the Project, using remaining funds; and (b) releasing funds from UNF which were frozen following the Mid-Term Evaluation. Credit must also go to NTNC for learning lessons and addressing the challenge of realigning the Project during this difficult period.

¹⁴ NTNC comments: “This was not planned and therefore not budgeted.”

38. There remain, however, two issues that have continued to elude the Project since its inception despite having been repeatedly raised, discussed and reviewed at Tri-Partite Review Group meetings and the Mid-Term Evaluation:

- formulation of a policy for managing the forest north of the Highway, which has held up the development of an integrated management plan for the entire Barandabhar Forest Corridor; and
- excessive speeding above the 40 mph limit along the section of Highway that bisects the Corridor.

The former issue, in particular, has been the subject of considerable investments of time and energy by NTNC, including technical expertise to draft regulations, in liaising with the Department of Forests, but it remains unresolved. These issues are considered further in Sections 4 (43, 50-51) and 5.1 (85.2, 85.13). The salient point to make in this section is that, despite having been repeatedly monitored and highlighted as obstacles to the achievement of Project objectives, the Project partnership has not been sufficiently cohesive, binding and influential to ensure their resolution over a five year period.

39. **EVALUATION Monitoring and evaluation is assessed as marginally unsatisfactory.** While it is appreciated that the Project lacked a logframe at the time of its inception, major efforts to subsequently develop a framework for monitoring Project outputs and anticipate survey requirements for comparing progress against 2002 benchmarks have been undermined by its ineffective use. Inadequate attention and resources to ensure that the relevant data are generated and collated in order to update the logframe at the end of the Project has probably resulted in some of the achievements being underestimated by the Evaluation Team due to lack of evidence.

LESSON 3 Logframes are essential tools for monitoring the implementation of Projects in so far as they provide accountability in ensuring successful and timely delivery of outputs.

RECOMMENDATION 4 Where absent from the Project Document, a logframe should be developed at the outset of implementation¹⁵. Where the executing agency has little or no experience in using the logframe, UNDP in its role as implementing agency should allocate sufficient time and resources to provide the necessary supervision and guidance in its use.

¹⁵ UNDP-GEF comments: “*This would never happen now. A lot has been systematized in the years since this project was developed.*”

4. PROJECT RESULTS

4.1 ACHIEVEMENT OF OBJECTIVES

40. EVALUATION Achievement of the Project's overall development objective is assessed as **satisfactory**, based on an evaluation of the three immediate objectives using the set of indicators prescribed in the logframe. A summary of ratings for objectives and outputs, accompanied by a rationale, is provided in Table 4.1. Full details, including the evidence upon which rationales are based, are given in Annex 4.

41. The above evaluation indicates that the Project has performed well in terms of achieving its objectives, especially in the context of being implemented during a period of insurgency. Particularly encouraging are the highly satisfactory/satisfactory ratings for Immediate Objective 2, to reduce pressures on natural resources within the Corridor. Good regeneration has been achieved throughout the Corridor as a result of major successes in reducing livestock grazing, firewood collection and possibly fodder collection. Such results are the outcome of Immediate Objective 3, to improve and diversify the livelihoods of the local people through provision of alternative means of generating incomes that are less dependent on forest resources. While good progress has been made on this front, little more than 51% of the targeted portion (3,500 households) of the population (109,316 people distributed among 17,795 households) is estimated to have benefited from the Project. It is crucial, therefore, that this original target is met over the next 2-3 years and then replicated among the rest of the population to ensure that regeneration occurring within the Corridor is not jeopardised by any lack of alternative livelihood options¹⁶.

42. Key Project achievements include:

- Much improved levels of biodiversity within the Corridor, most noticeable with respect to the vegetation, which is regenerating well, and to a lesser extent, based on available data, with respect to abundance of ungulates (including rhinoceros and tiger).
- Wide range of research undertaken to inform implementation of the Project and future management of the Corridor. Much of the research commissioned by the Trust is reasonably sound and well focused.
- Greater environmental awareness and the establishment of Green Force Clubs in all 47 government schools.
- Strengthening and establishment of a wide range of community-based initiatives and institutions, with focus on engaging with women and other socially disadvantaged groups. Livelihoods have improved for a significant proportion of the 3,500 households identified as belonging to marginalised/disadvantaged groups through a range of initiatives including income-generating activities, alternative or improved energy technologies, improved livestock and institution of savings/credit cooperatives. These improvements are underpinned by provision of health and veterinary care facilities.
- Huge reduction in pressures from livestock grazing, firewood collection and probably timber extraction and fodder collection from the core of the Corridor (i.e. excluding the 300 m peripheral fringes which are being managed formally (south of the Highway) or informally (north of the Highway) by Community Forest User Groups.
- A *living* museum, with its associated clinic in traditional medicine, to conserve Tharu culture and indigenous knowledge.

¹⁶ NTNC comments: "NTNC also feels the need for second generation project to capitalise on the TRCP achievement to meet the original target. As the project had build a good foundation for social mobilisation, infrastructure, capacity building further investment could ensure long term sustainability." UNDP Nepal comments: "This would perhaps require second generation project to support this." An alternative strategy is proposed by the Evaluation Team in Section 5.2.

Table 4.1 Summary of evaluation of objectives and outputs, based on logframe. Full details are provided in Annex 4.

OBJECTIVES Outputs	Objectively Verifiable Indicators (by end of project)	Evaluation	Ratings*				
			H S	S	M S	M U	H U
DEVELOPMENT OBJECTIVE Biodiversity in and around RCNP conserved	Existing biodiversity in and around Royal Chitwan National Park maintained and further degradation of biodiversity controlled	Existing biodiversity in the Corridor has been maintained and there is evidence of some increase in species diversity. Degradation has been significantly reduced through providing communities with alternative means of meeting subsistence needs and income generation. Regeneration of the vegetation is quantified as good to fair (based on forestry standards), to which large mammals appear to be responding in slowly increasing numbers.					
IMMEDIATE OBJECTIVE 1 Critical ecosystems within BFC managed and restored	<ol style="list-style-type: none"> Existing number of species (250 plants, 25 mammals, 290 birds) inside BFC maintained. Prey species density (0.8 individual per sq. km.) is increased compared to the level of 2002 record. 	<ol style="list-style-type: none"> Species diversity has been maintained. Some evidence of slight increase in diversity but uncertain of extent to which this might be due to better survey methods and improved inventories. There is marginal evidence, based on sightings, that prey populations are increasing. Prey density measures reported in PIR suggest significant increases but their basis could not be explained to Evaluation Team, nor was it possible to access Management Information System to verify. NB Higher rating is jeopardised by lack of robust/verifiable data. 					
Output 1.1 Management and monitoring of BFC strengthened	See Annex 4	Management has been strengthened through the development of plans for the Buffer Zone and the forest north of the highway but the latter cannot be implemented until protected forest policy regarding the rights of CFUGs has been determined. Monitoring, critical to informing future management, is being undertaken regularly by NTNC using sound methods. However, little progress has been made in establishing this at community level. The present inaccessibility of the Management Information System raises questions about its sustainability in terms of user 'friendliness' and simple design.					
Output 1.2 Key grassland ecosystems effectively managed	See Annex 4	Not evaluated as dropped from the Project in 2003.					
Output 1.3 Capable community based local institutional structures ensuring long-term management of natural resources established	See Annex 4	A wide range of local institutions have been successfully established for purposes of income generation, community forestry, environmental awareness and education in schools, human and livestock health and culture conservation. Most are likely to be sustainable; a few require further strategic development. A major drawback is the current lack of policies for protected forest north of the Highway, which will erode and undermine achievements to date if not addressed soon.					
IMMEDIATE OBJECTIVE 2 Pressure on the resources in the BFC reduced	<ol style="list-style-type: none"> Degraded forest (1100 hectare) of BFC regenerated. Tree densities (91 no./ha) in bottleneck area of BFC restored with regeneration. 	<ol style="list-style-type: none"> Regeneration is good throughout the Corridor, based on sampling 373 plots (25 km²) along 74.4 km of transects using standard survey techniques. NB Baseline data are not available for comparison purposes. Highest regeneration was recorded in northernmost bottleneck of Corridor where density of saplings is fair, just below 2,000 individuals/ha threshold for good status. Note: sapling density decreases from south to north, due either to better original condition of vegetation towards south OR continuing higher pressures inhibiting regeneration towards north. 					

OBJECTIVES Outputs	Objectively Verifiable Indicators (by end of project)	Evaluation	Ratings*				
			H S	S	M S	M U	H U
Output 2.1 <i>Antipoaching operations strengthened</i>	See Annex 4	Anti-poaching operations have been significantly strengthened through increasing anti-poaching units and creation of community-based anti-poaching units, supported by small amount of income from the endowment fund established by the project. This investment to date, however, appears not to have deterred poachers. In 2006 Barandabhar experienced the highest incidence of rhinos killed by poachers in Chitwan District.					
Output 2.2 <i>Environmental awareness increased</i>	See Annex 4	Awareness campaign successfully delivered to all 47 government schools via respective Green Force Clubs and to communities in and beyond Project area via radio. Impacts and awareness more difficult to judge but anecdotal evidence suggests that many within communities are sensitized.					
IMMEDIATE OBJECTIVE 3 Improved and diversified economic options outside BFC provided	5. 3500 households income of CBOs, particularly disadvantaged people, increased compared to 2002 base line.	5. 9% (307 households comprising 1,902 individuals) of 3,500 households benefited from ten income generating activities amounting to NRs 2 million, with 63% accruing to DAGs. If 1,491 households that benefited from alternative energy initiatives, which may generate income indirectly by saving on fuel purchases, are included and no household benefited from both types of initiative ¹⁷ , then 51% of target households may have been reached. In addition, improvements in breeding and veterinary care of livestock may have raised income levels among other households in this target group but relevant data are absent. Even with these inclusions and assumptions, number of beneficiary households probably well short of 3,500 household target. NB Lack of compatible data to compare with 2002 may undermine actual achievements of Project.					
Output 3.1 <i>Human induced pressure within BFC reduced by providing alternative livelihood options</i>	See Annex 4	Use of fuelwood and grazing resources within Barandabhar Forest has been reduced dramatically through provision of alternative energy sources, more efficient means of livestock production (improved breeds and stall feeding) and alternative sources of income generation. Some targets not met and some achievements likely to be underestimated due to absence of 2006 date to compare with baseline survey.					
Output 3.2 <i>Women's and Disadvantaged Groups (DAG's) participation in natural resources management increased through skills enhancement and awareness</i>	See Annex 4	Women and Disadvantaged groups participation in natural resources management has increased but mostly at participatory level, with little representation at executive, decision or policy making levels.					
Output 3.3 <i>Preservation and application of local indigenous knowledge for biodiversity conservation and income generation</i>	See Annex 4	Tharu Cultural Museum and associated Gurau clinic provide cultural complement to natural heritage of Chitwan National Park, adding significantly to Chitwan as a tourist destination. Moreover, it is a 'living' museum with its Gurau clinic that applies medical knowledge and traditions. Currently the Museum receives inadequate income to provide a fair wage to its two female guides and the rest of the establishment relies on volunteer labour. NB Output 3.3 is evaluated as satisfactory, with reservations about its future sustainability.					

*Highly Satisfactory, Satisfactory, Marginally Satisfactory, Marginally Unsatisfactory, Unsatisfactory, Highly Unsatisfactory

¹⁷ NTNC confirmed that no household benefited from more than one Project intervention to improve its economic status.

43. The main shortcomings with respect to objectives and outputs include:
- Lack of policy resolving the issue of communities north of the Highway participating in the in the management of a 300 m fringe of National Forest along the periphery of the Corridor. Concomitant with this issue are outstanding endorsements of a management plan for this northern portion of the Corridor and an integrated management plan for the entire Corridor.
 - Little or no progress in dealing with traffic exceeding the 40 mph speed limit along the section of the Highway that bisects the Corridor.
 - Limited success in addressing poaching, despite strengthening of anti-poaching operations.
 - Inadequate strengthening of monitoring and engagement of Community Forest User Groups in data management processes.
 - A Management Information System that currently is effectively inaccessible to Biodiversity Conservation Centre staff.
 - Absence of any strategy and actions to ensure that research reports are disseminated widely and readily accessible via NTNC's website.
 - Absence of current status surveys, especially socio-economic, to assess progress against 2002 baseline data. **Note that this limitation constrains the Final Evaluation which, as a result, may have underestimated some of the achievements.**
 - Limited replication of income-generating activities and other initiatives within the 3,500 households targeted for Project support.
 - Low level of participation in decision-making and agenda-setting bodies (e.g. User Group committees, local Working Committee) by women and representatives of disadvantaged groups.

4.2 PROJECT OUTPUTS

44. The Project Completion Report (April 2006) contains a full description of the Project's outputs and it is not necessary to repeat this information, other than highlight achievements based on this and other supporting evidence. Particular attention has been given to assessing outputs in relation to the indicators identified in the logframe, the results of which are given in Annex 4. This should be referred to in conjunction with the comments below for the respective outputs.

IMMEDIATE OBJECTIVE 1 Critical ecosystems within BFC managed and restored

Output 1.1 Management and monitoring of BCF strengthened

Monitoring

45. Methods and routines have been established by the Project for regularly monitoring tiger, rhinoceros, prey species (i.e. ungulates) and birds, details of which are summarised in Table 4.2.

Table 4.2 Summary of wildlife monitoring systems established in the Corridor

Species	Field method <i>Sampling intensity</i>	Frequency <i>Personnel</i>
Tiger	Camera trapping in combination with pugmark identification <i>8 pairs camera traps set for 15 days in locations 2 km apart; each pair sited either side of trail, checked am and set pm. 15 days monitoring north and 45 days south of Highway.</i>	Annually for two months <i>BCC wildlife technicians</i>
Rhino	Direct observations from elephant back <i>7 blocks censused consecutively with observers in line abreast.</i>	Pre-, intra-, post-monsoon <i>BCC wildlife technicians</i>
Prey	Direct observations from elephant back along line transects <i>16 transects¹⁸; 10 transects (totalling 49.1 km) lie in the Buffer Zone and six transects (totalling 14.8 km) lie north of the Highway monitored monthly for prey (ungulate) species.</i>	Monthly <i>BCC wildlife technicians</i>
Birds	Direct encounters (observations and calls) along line transects <i>6 transects totalling 56 km.</i>	Winter, summer, autumn <i>Bird experts</i>

¹⁸ Eighteen transects were originally established but two were washed away by floods in 2003.

Monitoring of small mammals was trialled in 2003 but not continued. The vegetation within all but the very northern extremity of the Corridor has been mapped using satellite imagery. A total of 32 permanent plots have been established for monitoring future changes.

46. Estimates of prey densities are calculated on the assumption that all transects are the same uniform width of 100 m (i.e. 50 m visibility on either side while censusing from the back of an elephant). This is considered inadequate: it does not account for variation within and, more importantly, between habitats; moreover, it could result in an apparent reduction in prey densities as the vegetation regenerates and visibility declines.

RECOMMENDATION 5 The methodology for monitoring prey (ungulates) should be modified to include visual estimates of visibility each time an ungulate is sighted. (This will not add significantly to the field work but it will enhance the robustness of density estimates and the scope for more detailed analyses, such as assessing the observability of different species.)

47. Forest guards from 15 Community Forest User Groups were trained in 2002 in order to build capacity for monitoring biodiversity within community forests. Some monitoring is being undertaken in six community forests but this is somewhat *ad hoc* and, as yet, the data have not been fed back to the Trust to enter into the Management Information System. The Evaluation Team noted the limited involvement of local authorities, such as Village Development Committees and District Development Committees in monitoring processes, which does not bode well with respect to its future sustainability.

LESSON 4 Successful institutionalisation of community-based forest and wildlife monitoring requires adequate training and resourcing, long-term supervision and feedback of analysed results.

Management

48. Survey data are held in a Management Information System, established in 2004 and linked to a Geographic Information System. This System has not been in operation since the end of 2005, following the departure of the GIS technician (see Section 3: 31).

49. Much of the Corridor, including the *bottleneck* area in the north, has been fenced along the eastern and western fringes with barbed wire (some 32 km in length) to keep out livestock and, to a lesser extent, to keep in wildlife. This is thought to have contributed significantly to the relatively rapid recovery of the vegetation and increasing numbers of wildlife (see Section 5.1: 85.4 regarding removal of fencing).

50. Management has been strengthened considerably. The 10 Buffer Zone Community Forests south of the Highway formally handed over to their respective User Groups are functioning well. However, north of the Highway, nine Community Forests have been delineated along the fringe of the Corridor and informally taken on management responsibilities in the absence of any management policy forthcoming from the Department of Forests (see further details in Section 5.1: 85.13). This represents the greatest obstacle to the integrated management of the Corridor, for which a Plan has been drafted but cannot be implemented until this issue is resolved.

LESSON 5 Clear policies are fundamental to effective, goal-oriented management.

RECOMMENDATION 6 Developing an appropriate management regime for the National Forest in the north of the Corridor is the number one priority.

51. The issue of vehicles exceeding the 40 mph speed limit while travelling along the 3.8 km section of the Highway that bisects the Corridor has not been addressed. Some 5,100 vehicles passed along this section daily in 2002, 44% of which were lorries and buses. Half a dozen accidents occur each year involving wildlife. One near miss involving a speeding lorry overtaking another vehicle, with a spotted deer sandwiched in between, occurred during the Evaluation Team's visit. Speed limit signs are almost totally ignored and most other vehicles overtake NTNC vehicles, which conscientiously keep to the speed limit. Either the speed limit should be abolished, or it should be

properly enforced. To have a speed limit that is ignored is a complete mockery and reflects poorly on conservation and traffic management. Speed cameras that monitor the average speed of a vehicle over the duration of its journey through a speed limited zone, with on-the-spot fines that equate to the cost of at least a full tank of fuel, is considered the best and probably only way of ensuring compliance. This would be very much cheaper than constructing under- or over-passes. Another alternative might be to close the road overnight or for several hours early morning and during the evening. However, before any measures are put in place there needs to be a comprehensive 24 hour census of vehicle movements and animals crossing or attempting to cross the length of the Highway in order to inform any strategy.

LESSON 6 Management interventions should be informed by rigorous science, with monitoring as appropriate, while also taking into account social, economic, political and other factors.

RECOMMENDATION 7 Undertake a census of vehicle and animal movements along the 3.8 km length of Highway that bisects the Corridor to inform the development and enforcement of appropriate measures to mitigate the movement of vehicles through a wildlife corridor, with respect to both the potential loss of human life and disturbance to wildlife.

Output 1.2 Key grassland ecosystems effectively managed

52. Barandabhar Forest Corridor is dominated by commercially valuable sal forest, with an understorey of grasses in more disturbed areas that are suitable for rhinoceros. Elsewhere are more extensive open grasslands of up to 88 ha. Shiru (*Imperata cylindrica*) has been replacing kans (*Saccharum spontaneum*) along the fringes of the Corridor. The original plan to uproot and burn 100 ha patches of shiru and replace it with the more palatable kans for the benefit of tiger prey species and rhinoceros proved overambitious and was dropped from project following the Mid-Term Evaluation. The Project Completion Report proposes protection of existing grasslands and potential sites along river banks where kans can propagate through natural regeneration. Given the significant changes to the flood plain in the last few decades, it would be appropriate to undertake a detailed review of their impacts on grasslands in conjunction with conducting some trials before embarking on any major intervention that may prove ineffective.

RECOMMENDATION 8 Future management of grasslands within the Corridor should be informed by an options appraisal, based on a study of ongoing changes to grasslands within the flood plain by a vegetation ecologist.

Output 1.3 Capable community based local institutional structures ensuring long term management of natural resources established

53. The Project successfully instituted and made operational a large number of community-based organisations¹⁹ including:

- two veterinary centres, a health centre and two health posts, Tharu Cultural Museum, two Child Education Development Programmes and an Environment Teachers' Forum, all of which have been set up with supporting endowment funds;
- 19 Community Forest User Groups, of which the nine in the Buffer Zone are officially operational;
- Green Force Clubs in all 47 government schools; and
- savings/credit groups among many target beneficiaries (popular among women's groups) and two savings/credit cooperatives.

¹⁹ In the context of Nepal, community-based organisations are formed when households collaborate with each other in community development or empowerment activities, for which they receive funds from government or donor agency (often *via* a project) in return for their labour.

54. Many of these institutions are linked directly or indirectly to income-generating, fuel wood reduction and other activities initiated by the Project to reduce pressures on natural resources within the central core of the Corridor (see Outputs 2.2 and 3.1 below).

55. Most of the institutions met during field visits indicated their firm commitment to continue functioning, now that the Project has ended. Some are already receiving financial support from their Municipality, Village Development Committee, Buffer Zone Development Council and other local government agencies. They are optimistic about their longer term institutional and financial sustainability. The Evaluation Team shares this optimism bar two exceptions that concern the sustainability of the Child Education Development Programme/Environment Teachers' Forum and the Tharu Cultural Museum. These require special measures to diversify their income base, as discussed below under Outputs 2.2 and 3.3, respectively.

IMMEDIATE OBJECTIVE 2 Pressure on the resources in the BFC reduced

Output 2.1 Anti-poaching operations strengthened

56. Three mobile anti-poaching units were institutionalized by the Project in collaboration with Chitwan National Park, Nepal Army and the Chitwan District Forest Office. Of these units, one operates in the National Park under the coordination of the Army and National Park authority, the second operates in the Buffer Zone south of the Highway under the coordination of the National Park and Buffer Zone Development Council and the third unit operates under the authority of the District Forest Officer in the Corridor north of the Highway. These units are supported by two community-based anti-poaching groups. An endowment fund of NRs 5 million was established by the Project, from which the interest (nearly Rs 250,000) is used to meet the running costs (transport and field equipment) of anti-poaching operations in accordance with guidelines developed and approved in consultation with key stakeholders.

57. The two community-based anti-poaching groups are based in the eastern and western parts, respectively, of the Corridor and each has two operational sub-groups. One of the sub-groups in the eastern part of the corridor is a young people's anti-poaching movement (Youth Awareness Campaign Group), which has its own endowment fund of NRs. 50,000 (NRs 30,000 from the Project and NRs 20,000 from the Buffer Zone Development Council). Sub-groups run various anti-poaching awareness programmes, maintain vigilance, network and share information to combat poaching in the Corridor.

58. The two anti-poaching units operating south of the Highway are claimed to have been quite effective in terms of regular patrolling, strengthening their informants' network and conducting sweeping operations. The third operating north of the Highway has been receiving some additional support from World Wide Fund for Nature under the Terai Arc Landscape initiative but further strengthening and commitment of resources is required to control poaching. This is evident from the recent spate of rhinoceros poaching when Barandabhar Corridor experienced the highest incidence of poaching anywhere in Chitwan District, much of which was concentrated in the north of the Corridor. A total of seven rhinoceros were killed during the last two years of the Project (2005-2006), when poaching in the Corridor was at a peak, as compared with three during the initial three years of the Project (2002-2004)²⁰. No data are available for 2007 but 66% of rhinos killed in the last six months are reported to have been from outside the National Park.

59. Despite strengthening anti-poaching operations and numerous successes with respect to apprehending poachers, as reported in the logframe (Annex 4), government agency and local community efforts have failed to protect flagship species being killed in the Corridor. Poachers were able to operate more easily during the insurgency, when anti-poaching units patrolled less extensively and communities experienced heightened insecurity. NTNC reported that the Project concentrated its anti-poaching efforts in the Buffer Zone, where there were more rhinoceros, leaving the north more exposed. Also there is conjecture that ungulates, such as rhinoceros, that are increasingly using the regenerating *bottleneck* area are more vulnerable to poachers because of its very confined nature.

²⁰ Status of Greater One-horned Rhinoceros in the Barandabhar Corridor Forest during 2002-2006, Nepal. Biodiversity Conservation Centre, National Trust for Nature Conservation, 2006.

60. Anti-poaching strategies need to be reviewed, with closer involvement and partnership of local communities. Given the huge awareness of the importance of the Corridor for tiger and rhinoceros for biodiversity and ecotourism, there may be an opportunity to encourage communities to declare and make their Corridor a ‘Community Safe Haven from Poaching’, with full support from the relevant government agencies. Communities respond well to challenges and the recognition these bring. In the Indian Himalaya, for example, the Valley of Flowers National Park had become known as ‘Plastic Valley’ on account of all the plastic water bottles and raincoats left by visitors. The local community established Eco-development Committees and, with support from the Forest Department, introduced various mechanisms and incentives that resulted in the Valley being cleaned of its plastic and other rubbish within a year (see www.peopleandplanet.net/pdoc.php?id=3058).

LESSON 7 Partnership is the key to success for organisations sharing common goals.

RECOMMENDATION 9 More innovative approaches owned by local communities and supported by government should be explored to combat poaching of wildlife in the Corridor. These might include declaring the Corridor a ‘Community Safe Haven from Poaching.’

Output 2.2 Environmental awareness increased

61. The thrust of this output was to raise awareness about environmental, human and livestock health and incorporate appropriate responses into the sustainable development of communities in the vicinity of the Corridor. Environmental awareness, in its broadest sense, is highly relevant to the livelihoods of the rural poor, particularly in the Project area where people and their livestock come into direct conflict with wildlife, sometimes resulting in death or injury, transmission of disease and contamination of drinking water supplies. Key target groups of the awareness programme were teachers and their students, forest-dependent men and women, farmers and visitors. The Project reached the wider community *via* the media, notably a radio programme (*Conservation for Development*) which ran fortnightly for five years.

62. Forty five environment and science teachers from the 47 government schools in the Project area were trained in environmental conservation education. These trained teachers constituted and formally registered an Environment Teachers’ Forum with the objective of supporting students raise conservation awareness among their peers and local communities. This has been achieved through the establishment of Green Force Clubs in all 47 government schools for students in Grades 6-10. Additionally, many schools have benefited from the Project’s Greenery Programme to improve their environment with plants.

63. Three endowment funds, totalling in excess of NRs 1 million, have been established for educational development work in schools. One supports the work of the Environment Teachers’ Forum and the other two funds provide school materials (e.g. books, uniforms) for children from poor, disadvantaged and generally forest-dependent households who might otherwise not have access to school education. The funds are managed jointly by two regional committees, under the Child Education Development Programme, and the Environment Teachers’ Forum in accordance with guidelines.

64. These endowment funds have been very effective in supporting better access to education and conservation awareness raising among students. However, the demand for such support exceeds available resources and, in the case of the Environment Teachers’ Fund, there is an additional constraint: teachers readily acknowledge that they do not have enough time to guide and support the work of the Green Clubs. One option might be to use the Environment Teachers’ Fund to engage the services of several environmental youth workers but this would require additional resources.

LESSON 8 Volunteer time may be a scarcer resource than money to pay for effective delivery of outputs.

RECOMMENDATION 10 The model for raising awareness and participation in conservation among school students needs to be strategically reviewed from a resources perspective in order to secure longer term sustainability.

OBJECTIVE 3 Improved and diversified economic options outside BFC provided

Output 3.1 Human induced pressure within Barandabhar Forest Corridor reduced by providing alternative livelihood options

Ecotourism

65. Ecotourism is potentially an import incoming-generating opportunity for many of the communities within the Project area and it has already been explored by the Community Forest User Groups of Baghmara, Kumrose and Chitrasen. An Ecotourism Management Plan has been developed for the Corridor and a series of ecotourism packages are in the process of being produced but activities to date appear to be limited and somewhat *ad hoc*. It is also unclear precisely how women and disadvantaged groups will be engaged in tourism enterprises and related activities.

66. A view tower and a resting lodge have been constructed at Siraichuli in the Mahabharat Hills, in collaboration with Chitwan Tourism Development Committee and with joint funding from the UNDP Tourism for Rural Poverty Alleviation Programme. Some community members have acquired visitor management skills and become wildlife guides or gained other employment in the local tourism industry.

67. Fundamentally, there is no sense of any long-term vision of what the Corridor, as a destination, might offer the visitor by way of an integrated package and the steps that need to be taken to achieve it. This vision needs to be shared by local communities, government agencies and the private sector in order to be realised. Ecotourism might also be coupled with agri-tourism, given the predominantly agricultural basis to local livelihoods in the vicinity of the Corridor. Such initiatives are beginning to emerge elsewhere in South Asia (see <http://www.viluyana.com/> for a Sri Lankan example).

Alternative energy

68. A total of 1,491 households are using alternative energies, details of which are given in Annex 4. Of these households, 46% represent disadvantaged groups. It was noted that bio-briquettes are not being used. This translates into an estimated annual reduction in firewood consumption of approximately 2.5 million kg. Biogas is reported to be the most effective alternative, in terms of firewood saved per unit alternative energy, followed by husk stove and improved cooking stove²¹.

69. A woman using biogas reported to the Evaluation Team that: the plant is very easy to handle and the gas clean to use, much time and energy in keeping a fire alight by blowing is saved, and her health had improved as a result of no longer inhaling smoke from the fire. In addition, money (about NRs 700 per month) and time otherwise spent on purchasing or collecting firewood, respectively, had been invested in income-generation activities which had enabled them to buy more land, structurally improve their home and now privately educate their children.

70. The Evaluation Team has some reservations about more limited distribution of biogas plants among members of the most disadvantaged groups. It was explained that members of such groups are often landless as well as poor and, therefore, less likely to possess the livestock necessary to feed biological digesters. This is true but, interestingly, several buffalo were evident at the homes of the Musahar community visited by the Team. Given that biogas is certified as a Clean Development Mechanism under a special arrangement of the Kyoto Protocol to reduce carbon emissions, there are huge incentives for donor governments to support its adoption in developing countries at grassroots levels.

RECOMMENDATION 11 Promotion of biogas has been inequitable and not benefited the poorest, landless members of disadvantaged communities within the Project area. Opportunities to introduce biogas to these members of communities should be reviewed and the necessary financial resources secured under the Clean Development Mechanism.

²¹ NTNC reports that the annual amount of energy saved per biogas plant, husk stove and improved cooking stove is 4,314, 1,490 and 189 kg, respectively.

Infrastructural development (Veterinary and Health centres)

71. One community-managed veterinary centre has been established in new Padampur Village in the north of the Corridor. It has been effective in improving the health and breeding stock of livestock in the area, as well as reducing risks of disease being transmitted to wildlife. As in the case of biogas, the Centre does not benefit the poorer, landless community members who rarely own livestock.

72. Stall feeding has been greatly promoted and cattle grazing inside the Corridor reduced from 2097 to 551 animals per day between 2002 and 2006. This has had a very positive effect on forest regeneration. However, Panchakanya Community Forest Users Group reported that stall feeding has reduced numbers of livestock in production and negatively impacted on livelihoods.

RECOMMENDATION 12 A comprehensive review of the impacts (costs and benefits) of the changes in livestock farming, from free-ranging to stall-fed, should be undertaken, taking into account forest biodiversity, cropping patterns, nutrition cycles, use of fertilizers, alternative energy production (biogas) and time spent collecting fodder.

73. Primary health care is now provided *via* the Pancharatna Health Post in Ratnanagar Municipality and two sub-posts in Gitanagar and Bharatpur Municipality, all of which are community managed. Outcomes include a greater awareness of health issues, particularly in relation to sanitation, and reportedly a decreased mortality of mothers during childbirth.

74. A major draw-back to the present arrangement is the lack of female employees. Women, particularly from rural areas, are reluctant to visit male health workers on maternity and reproductive health matters. The Health Post is currently seeking Ministerial approval for its recognition as a sub-outpost, which will enable it to secure three staff including a mid-wife.

Output 3.2 Women's and Disadvantaged Groups (DAGs) participation in natural resources management increased through skills enhancement and awareness

Income generation

75. One of the pragmatic and novel approaches taken by the Project was the implementation of a range of income generating schemes. These were targeted primarily at disadvantaged castes or ethnic groups, such as Mushahar, Kumal, Daria, Bote, Chepang, Tamang, Gurung, Rai, Limbu, Magar, Lama, Kami, Damai, Sarki and Tharu, and secondarily at low-income households of all castes.

76. Some 15 income-generating schemes (mushroom farming, bee keeping, fish farming, wool spinning, handicraft/tika/ candle making, cooking, house wiring, plumbing, fish farming, duck raising, banana farming, vegetable growing and driving) were initiated by the Project. Several of these were at the request of local communities, specifically fish and duck farming. Activities such as wool spinning, and the making of tika, candles and handicrafts (baskets) focus particularly on women, who comprised 49% of those trained in income-generating skills by the Project. The majority of those trained in these skills are benefiting from additional income to the extent that a few are fully supported in their livelihood needs by the income generated. Women involved in handicraft making and wool spinning indicated that they have become economically independent for their small-scale daily needs and this has increased their self confidence.

77. A survey of 307 households benefiting from 10 of these activities (see Annex 4, 34) showed that disadvantaged groups had benefited more than other groups in two respects, in line with Project objectives:

- disadvantaged groups comprised 59% of the total number of households, which is 18% higher than the percentage of the population belonging to disadvantaged groups in the Project area; and
- annual household income generation had increased by more (NRs 7,000) among disadvantaged groups than among non-disadvantaged groups (NRs 6,000).

78. While much has been achieved by establishing these income generating activities, there are several shortcomings to be addressed:

- Of the target of 3,500 households²² identified as indigenous groups and ethnic minorities living on the perimeter of the Corridor whose incomes should be raised by the end of the Project, only 9% appear to have benefited directly from these income generating activities.
- Several of the activities are limited by seasonal changes in demand (e.g. candles and tika) and some are not very lucrative (e.g. wool spinning).
- Some activities are not particularly environmentally sustainable with respect to raw materials and products being transported long distances. Environmental and health risks should also be assessed, for example the potential impact of bees on native populations inside the periphery of the National Park and potential pesticide levels in honey.
- Marketing and the development of appropriate infrastructures. For example, there currently appears to be glut of honey.

LESSON 9 Economic feasibility studies should precede interventions to provide alternative and more sustainable means of livelihood. Moreover, a multi-skills approach to provision of alternative means of livelihood is likely to increase sustainability.

RECOMMENDATION 13 Priority should be given to replicating income generating activities among other households within the target group, while also adopting a multi-skills approach so that options for year-round income generation are available to a household. These interventions should be informed by the outcomes of feasibility studies.

RECOMMENDATION 14 Future socio-economic monitoring should ensure that disaggregated data are generated for the analysis of participation of women and representatives of disadvantaged groups in decision making.

RECOMMENDATION 15 An audit of environmental impacts and risks to health, supported by necessary research, should be undertaken for all income generating activities. This may require long-term monitoring as, for example, in the case of wool spinning for which protective masks are in use.

Saving and credit groups

79. The formation of saving and credit groups within communities is a good example of enabling people to help each other by providing ready access to financial resources at low cost, especially with respect to the poor and disadvantaged. Advantages of such an approach include low and affordable rates of interest, increased financial security within the community, and investment opportunities that generate further wealth/assets. These self-help schemes have led to the establishment of two Saving and Credit Cooperatives that are registered with the District Cooperative Office and running well. It has created opportunities for investments in livestock raising, dairy development and other economic activities. High feelings of ownership of these cooperatives were noted by the Evaluation Team.

Participation in governance

80. The Project has adopted an effective strategy of forming sub-groups of women and disadvantaged janajati and dalits to build their confidence and capacity and gain social recognition and credibility. This has also encouraged women and disadvantaged persons to organise themselves and raise their voices within their communities. Representation of women and disadvantaged groups has increased within executive committees of Community Forest User Groups by small percentages (see Annex 4: 41). It is not possible, however, to assess the extent which such representation reflects genuine participation in agenda setting and decision-making processes using the available data.

81. Understanding and internalising of the rights of the poor and disadvantaged is also inadequate among some members of Community Forest User Groups encountered by the Evaluation Team, as in the case of Navajagriti and Gitanagar. The rich and elite, in particular, still resist attempts of positive discrimination towards the poor and disadvantaged in benefit sharing and decision-making. They do

²² i.e. 20% of the 17,795 households within the Project area, of which 41% belong to disadvantaged groups (see Section 2: 9).

not fully appreciate that such positive discrimination is ultimately beneficial to the entire community. Likewise, the Draft Protected Forest Regulation makes no provisions for the involvement of women and people from disadvantaged groups in the management of forest, only in anti-poaching activities. There are similar oversights in the Barandabhar Forest Corridor Management Plan with respect to the role of such groups in natural resource management and biodiversity conservation.

RECOMMENDATION 16 Levels of participation in governance by women and those from disadvantaged groups need to be thoroughly assessed to ensure that future development activities are targeted strategically, thereby maximising social equity and providing options for all community members to avoid over-exploitation of natural resources.

Output 3.3 Preservation and application of local indigenous knowledge for biodiversity conservation and income generation

82. The establishment of a Tharu Museum and Gurau Clinic has provided a mechanism for maintaining the culture in a very *living* sense through employment opportunities in its management and associated activities, such as the use of traditional herbal medicines by Goraus (Tharu healers) among local people and handicraft making for visiting tourists. The use of herbal plants also raises awareness of the importance of conserving both the plants and the traditional knowledge associated with their medicinal use. Measures have been taken to create a nursery, to provide the Clinic with a ready source of medicinal plants, and to document knowledge about their medicinal properties and use.

83. The Tharu complex is managed by a committee of 11 members, staffed by two Tharu women and several volunteers, and supported by an endowment fund of NRs 100,000 that generates an annual income of about NRs 7,000. Staff are each paid NRs 1,000 per month, which is a totally unrealistic wage (NRs 5,000 would be reasonable) but this is all that can be afforded at present. Annual income from visitors has risen from about NRs 30,000 in 2005/06 (3,046 visitors of which 48% were foreigners) to NRs 50,000 in 2006/07 (5,398 visitors, of which 44% were foreigners). Thus, total annual income is about NRs 80,000, whereas nearer NRs 200,000 is required for staff and other running costs. The irony is that foreign visitors are paying only NRs 15 and, indirectly, *via* their hoteliers in Sauraha who have a package deal that includes a visit to Tharu Museum. So far, the Committee has been unable to persuade the hoteliers to improve their deal.

84. The present agreement between the Tharu Museum/Clinic management committee and the Sauraha hoteliers is inequitable and tantamount to exploitation, although this may not be appreciated by the hoteliers. It fails to recognise the contribution of Tharu Museum and Gurau Clinic to the value of Chitwan as a destination for tourists, complementing the natural heritage of the National Park and adjacent forests with Tharu cultural heritage.

LESSON 10 Partnership working must be equitable and democratic in order to meet the interests of all parties. In the absence of a fair deal, independence may be a more sustainable strategy.

RECOMMENDATION 17 The Tharu Museum/Clinic management committee should seek to negotiate a fair deal with the Sauraha hoteliers or, alternatively, manage their own destiny and develop a unique package for visitors. For example, this might include the establishment of hourly return trips by bullock cart from Sauraha to the Museum for a minimum of NRs 100 per person.

5. PROJECT IMPACT AND SUSTAINABILITY

5.1 MAIN FINDINGS

85. The main findings about the Project are summarised in the Box below, based around key questions that the Evaluation Team was asked to address.

Main findings in relation to key questions
<p><i>1. Have the planned outputs and outcomes been achieved? If not, what are the reasons for that?</i></p> <p>Planned outputs and outcomes have been achieved to greater or lesser extents, with the exception of the effective management of grasslands (Output 1.2), which was felt to be too ambitious to achieve within the life of the Project and dropped after the Mid-Term Review. The extent to which they have been achieved is considered in detail in Section 4 and Annex 4, although it should be appreciated that some achievements may have been underestimated by this Final Evaluation due to lack of data to compare with the baseline status in 2002.</p> <p>Greatest progress has been made at grassroots level: establishing and/or developing community-based organizations and institutional structures; raising awareness of environmental, cultural and social (e.g. health, education, disadvantaged groups) issues; and reducing pressures on natural resources within the Barandabhar Forest Corridor by a series of measures that include the introduction of alternative sources of energy or more efficient use of firewood for cooking, improvements in the breeding and management (stall feeding) of livestock, establishment of a variety of alternative or supplementary income-generating activities (e.g. bee keeping, wool spinning, handicraft/tika/candle making, fish/duck farming), and establishing a 'living' museum for the Tharus. These initiatives have been undertaken with emphasis on women's and disadvantaged groups and on their sustainability well beyond the life of the Project. The outcomes of these achievements include natural regeneration of forest within the Corridor, resulting from the much reduced levels of grazing and firewood collection (aided by barbed wire fencing to keep out livestock), and improved livelihoods. (There are no data on fodder collection.)</p> <p>The continuing lack of any policy on community-based management of the forest north of the Highway, despite considerable efforts to resolve this issue, is the most significant failure of the Project for reasons discussed in the response to Question 13. The matter needs to be addressed urgently by the Ministry of Forests & Soil Conservation to avoid further erosion of goodwill and commitment among the communities towards the objectives of this Project and to allow the Management Plan, in Final Draft form, to be implemented.</p>
<p><i>2. Has the project facilitated for any policy change related to conservation of forest corridor in Nepal or overall conservation policies related to biodiversity conservation and national park management in relation to the project goal?</i></p> <p>The Project is in the process of facilitating policy changes, by demonstration, in the following areas:</p> <ul style="list-style-type: none">▪ The ecological role of corridors in connecting fragmented habitats in order to conserve landscapes, in this case linking the Siwaliks with the Mahabharat Range as a component of a much larger Terai Arc Landscape initiative. A landscape-scale approach to conservation is prioritised in the Government of Nepal's 10th Plan (2002-2007).▪ Dual objectives of conserving natural and cultural heritage and alleviating poverty may be achieved within corridors through restoration and conservation of natural resources in combination with empowerment of local communities (particularly women and other groups) and the development of alternative means of livelihood. This initiative is in its infancy and requires nurturing at all social and political levels to secure long-term sustainability. One fundamental challenge to the concept of such an integrated approach that is likely to escalate as ecological restoration accelerates is increasing levels of conflict between people and wildlife. This might need to be addressed in the future through the local institutionalisation of insurance schemes for people, their homes, livestock and crops. <p>In the aftermath of the Project, particularly given the permanent presence and long-term programme of NTNC in Chitwan, there remains the opportunity to facilitate policy changes in the following outstanding areas:</p> <ul style="list-style-type: none">▪ Development of regulations or other appropriate measures for the management of forest north of the

Highway in a participative way that benefits the local communities. This may prove to be a test case that will inform the development of strategies and policies elsewhere within the Terai Arc Landscape and more widely within Nepal's forest sector.

- Effective enforcement of the 40 mph speed limit along the stretch of Highway that bisects the Corridor. This would establish a precedent, ensuring that vehicles respect the rights of wildlife to move through the Corridor without undue risk of death or injury that could be replicated in other protected, buffer and corridor areas in Nepal and, indeed, elsewhere in Asia.

3. *Has the project built the capacity of the concerned stakeholders including CNP, BZM, DFO as well as the local community institutions e.g. forest user groups, so that the corridor management is capable of carrying on the biodiversity conservation (planning, management and monitoring)? If not, why not?*

There is plenty of good evidence that the Project has been largely successful in building the capacity of local community institutions, including Forest User Groups and cooperatives, all of whom are strongly supportive of its integrated conservation and livelihood development objectives. The huge success of Baghmara Forest User Group is evidence of what can be achieved but this will require strategic guidance, as not all Forest User Groups will be able to rely on tourism in the same way or to the same extent, and at least another five years of time for initiatives to be consolidated and institutionalised.

There is less evidence of capacity building with respect to planning, managing and monitoring biodiversity. Very little monitoring is being undertaken by Forest User Groups, despite training initiatives, and none of the data are currently being entered into the Management Information System held by the Trust at their Biodiversity Conservation Centre. This requires strategic direction, programming and coordinating, with the lead being taken by the Trust, given that it probably has the most competence in this area.

The Project has established good working relations with its local partners, including Chitwan National Park, Buffer Zone Council and the District Forest Office, as evident from the functioning of the local Working Committee. This Committee, which does not have any Terms of Reference, appears not to have been empowered with anything other than facilitating implementation of the Project. Given the senior offices of its members, this is considered to have been a lost opportunity that may have contributed to deficiencies at policy planning, management and monitoring levels. The future development of this Committee into a Barandabhar Forest Conservation Committee is discussed in Section 5.2 (88i). Further attention, through this Committee and other mechanisms, will need to be given to developing the capacity of the District Forest Office to manage its northern part of the Corridor for the primary purpose of biodiversity conservation rather than timber production.

4. *Assess the relevance of the project methodology chosen to achieve the project goals on biodiversity conservation with the emphasis on corridor ecology and protection of rhinoceros and tigers as well as other mammals.*

The concept of establishing a corridor of naturally regenerating forest habitat to link Chitwan National Park, itself a World Heritage site, and its adjacent protected areas to forests in the Mahabharat Range is perfectly valid with respect to providing more space for wildlife in core areas to disperse into marginal areas and potentially colonise new areas in the longer term. The methodology employed by this Project relies on ecological restoration through natural regeneration, enabled by fencing much of the forest perimeter, including either side of sections of road that cross the Corridor, to reduce grazing by livestock and other measures to reduce collection of fodder and fuel wood.

A slightly contentious issue has been the extensive use (31 km) of barbed wire fencing to keep out livestock and, to some extent, local people by reducing the number of access points to the forest because this impedes movement by wildlife. In the long-term this can only be addressed by the removal of all fencing either side of the Highway and other minor roads that cross the Corridor but undoubtedly its installation early on in the Project has been critical for the rapid regeneration of habitat. Less is known about its role and effectiveness in keeping wildlife out of the surrounding agricultural lands and this merits research. The Trust has decided to remove some of the fencing along the road that crosses the bottleneck area in the north of the Corridor. Again some baseline data and subsequent monitoring is warranted to inform future policy.

Protection of tiger and rhinoceros within the Corridor is a major challenge. This has been tackled by the establishment of additional mobile anti-poaching units in the Buffer Zone and north of the Highway, complemented by community-based anti-poaching units, all of which is supported to a limited extent by an endowment fund of NRs 5 million. While these initiatives have led to the arrest and prosecution of many poachers, they have not been effective in keeping poaching to a minimum. In 2006, the Corridor experienced

the highest level of rhinoceros poaching in Chitwan District and 3 animals were killed in the northern bottleneck area where anti-poaching measures were least developed. The Trust and relevant authorities were taken unawares, having focused their efforts on the buffer zone south of the Highway, where rhinoceros was more commonly encountered. Clearly strategies need to be reviewed and, as suggested in Section 4.2 (60), perhaps there is an opportunity for the local communities to declare and make their Corridor a 'Community Safe Haven from Poaching', with full support from the relevant government agencies.

5. Is the management information system established within NTNC Office at Chitwan being regularly updated and information effectively used for further conservation planning and monitoring?

The Evaluation Team were not able to examine the Management Information System as none of the NTNC staff present knew how to access the system. Currently, it is not being regularly updated because of access limitations. The Team were informed that once access to the System is gained, data entry is straightforward. However, very few staff within the Trust has the technical ability to extract data from the System. This highly unsatisfactory matter is discussed further in Section 3.2 (31).

6. Has the project created sustainable and replicable income generating schemes that contribute to biodiversity conservation?

Some 15 income-generating schemes (mushroom farming, bee keeping, fish farming, wool spinning, handicraft/tika/ candle making, cooking, house wiring, plumbing, fish farming, duck raising, banana farming, vegetable growing and driving) have been introduced by the Project to over 300 households, most of which are considered to be economically sustainable. A few of these activities are subject to fluctuations in demand, such as tika and candle making which depend to some extent on the seasonal distribution of festivals and powers cuts, respectively. Mushroom farming is also seasonal but a successful farmer can earn at least a year's income in the six-month season.

The extent to which these activities contribute to biodiversity conservation is more difficult to assess. A survey of 307 households benefiting from 10 of these activities showed that annual household income generation had increased by about NRs 7,000 among disadvantaged groups and NRs 6,000 for non-disadvantaged groups (see Annex 4, 34). What is not known is the extent to which this additional income reduced dependence on forest resources and, therefore, directly benefited biodiversity conservation. It is reasonable to assume that such activities have contributed to biodiversity conservation, given the huge reduction in firewood collection (56%) and cattle grazing (81%) in the Corridor (see Annex 4, 31-32) but more detailed research is required to fully understand the nature of the drivers behind these positive outcomes.

While all of these activities are replicable, subject to market forces and the establishment of appropriate infrastructures, they have not yet radiated to the wider target group of some 3,500 households, identified as indigenous groups and ethnic minorities living on the perimeter of the Corridor whose incomes should be raised by the end of the Project. Only 9% of this target has been reached. However, a further 1,491 households have benefited from alternative energy initiatives, most of which generate income indirectly by saving on the purchase of fuel. Inclusion of these households, none of which benefited from other income-generating activities, indicates that at least 51% of the target group was reached. In addition, improvements in the breeding and veterinary care of livestock may also have raised income levels among this target group but relevant data to estimate the impact do not exist. It should be noted, however, that the *Barandabhar Forest Corridor Management Plan* (Final Draft, February 2004) cites a CeNSUS Rapid Survey (2003) that identified 3,701 households within poor and disadvantaged groups living in clusters close to the Corridor that had not benefited from Project activities. This Management Plan also reports that there has not been sufficient replication of income generating activities to have had a meaningful impact on the wider community.

7. How well are the Anti-Poaching Units and other endowment funds created by the project functioning and are they sustainable in the long-term without external support?

Anti-poaching endowment fund

The anti-poaching units for the National Park and its Buffer Zone, south of the Highway, have been working relatively effectively as reflected by a significant decline in incidences of poaching in both areas. These two units function under the leadership of the Chief Warden/Nepalese Army and Chief Warden/Buffer Zone Development Council, respectively, and in both cases poaching control is a priority activity. In the case of the District Forest Office, anti-poaching work is just one among many activities and, therefore, is relatively low priority in terms of being adequately resourced with skilled and committed staff.

The Anti-poaching Committee is supported by an endowment fund of NRs 5 million, from which the interest

only partially covers the operational costs. Guidelines have helped ensure effective mobilisation of the fund.

Assessment of the long-term economic sustainability of anti-poaching units would require much more extensive, in-depth study and appraisal of other options.

Other endowment funds

Nine other endowment funds have been created for two veterinary centres, a health centre and two health posts, Tharu Cultural Museum, two Community Education Development Programmes and a Environment Teachers' Forum. These funds operate in accordance with their guidelines and the interest accrued is used largely to support the costs of running the institution or programme. Those encountered by the Evaluation Team appeared to be governed and managed in a transparent and democratic manner.

In most cases the interest accruing from these endowment funds is insufficient to cover the running costs but, importantly, it provides financial leverage for securing additional funds from other local sources such as village development committees, municipalities and Forest User Groups. Most local trustees responsible for the endowment funds were confident that they would be able to continue operating in this way and remain viable for the foreseeable future. The Evaluation Team is concerned, however, about the sustainability of the Child Education Development Programmes/Environment Teachers' Forum and Tharu Cultural Museum. These require special measures to diversify their income base (see Section 4.2: 64 and 84, respectively).

8. How relevant have the project interventions been for the target beneficiaries? Has the project provided tangible benefits to help them improve their income level and adapt diversified livelihood options?

Project interventions have been very relevant to targeted beneficiaries in terms of increased income levels and diversified livelihoods, either directly through novel income-generating activities or other income-saving measures such as alternative energy, livestock improvements and community forestry. As shown in the response to Question 6, an estimated 51% of the 3,500 targeted households benefited from either income-generating activities or provision of alternative energy. This represents 10% of the 17,795 households (109,316 individuals) within the Project area. However, this estimate does not take into account those households benefitting from livestock improvements and community forestry, nor a certain amount of replication of successful initiatives by Community Forest User Groups and other community-based organisations established by the Project, for none of which is data available.

There are some critical equity issues which have been only partially addressed by the Project (see Section 4.2: 70, 80-81).

9. Has the level of public awareness on biodiversity conservation issues increased and subsequent public support for conservation activities enhanced?

Measuring the level of public awareness requires particularly SMART²³ indicators, which have not been generated by the Project for this purpose. In general, the Evaluation Team found an enhanced level of awareness for biodiversity conservation among many of the target beneficiaries while interacting with them. Other anecdotal evidence includes the following:

- Tiger and rhinoceros poaching has become an issue of public concern and featured much more frequently in the media during the last 4-5 years. There have been a growing number of interventions, workshops and seminars at district and national level; more recently, questions are raised in parliament whenever such incidents have taken place; and very recently the public criticized the government when it released several rhinoceros poachers before their term of imprisonment was completed.
- Musahars are the landless and poorest among all casts in the Project area. A Musahar settlement manages a fishpond in Baghmara Community Forest, with support from the Project. Recently, they discovered that two crocodiles had entered their pond and consumed a large quantity of their fish stock, in spite of which they caught the animals and transported them to the nearby Rapti River.
- Communities have adopted various measures to minimise crop depredation by wildlife with support from the National Park, Buffer Zone Development Council and the Project. Nevertheless, people have continued to suffer from personal injuries, loss of livestock and crop damage but there has been almost no incidence of killing wildlife in settlements surrounding the Corridor over the last few years. People

²³ Specific, Measurable, Achievable, Relevant and Time-framed (see en.wikipedia.org/wiki/SMART_%28Specific_Measurable_Achievable_Realistic_Time%29)

are committed to safeguarding the wildlife despite the personal costs.

- Community Forest User Groups are committed to manage their forests as natural habitat for the flagship species (tiger and rhinoceros) to generate income from tourism. This has been successfully demonstrated by the Baghmara Forest User Group (see response to Question 10).

However, the Evaluation Team also encountered a few individuals from some of the most deprived and vulnerable disadvantaged groups who expressed their unhappiness about damage to their crops and its impact on their livelihoods. One woman was desperate to leave the area as wild animals had threatened her crops and her life. Thus, conservation is a luxury which poorer, disadvantaged people are less likely to be able to afford irrespective of their level of environmental awareness. This highlights the need to develop appropriate measures, including insurance schemes, to address conflicts between people and wildlife as mentioned in the response to Question 2.

10. Has the project been able to create demonstrable linkages between local benefits and global environmental benefits?

The Project has demonstrated clearly how provision of alternative and more sustainable means of improved livelihood, outlined in responses to Questions 6 and 8, has led to good regeneration of tree species throughout the Corridor (Table 4.1 and Annex 4: 3 and 4), due to the huge reduction in pressures from grazing livestock, firewood and fodder collection, and timber extraction, and there is preliminary evidence of increases in ungulate prey density and avifaunal diversity (Table 4.1 and Annex 4: 1 and 2).

There are also clear linkages between global environmental benefits, in terms of stable or possibly increasing numbers of globally endangered flagship species (tiger and rhinoceros) within the Corridor and greater connectivity between globally important but fragmented habitats²⁴, and increased tourism that contributes directly to the local economy. This is demonstrated in Baghmara Forest, which lies in the Buffer Zone, adjacent to the National Park, where the User Group has developed tourism very successfully over the past decade through provision of elephant safaris, canoe trips, guided walks and observation towers to view wildlife. Further north, development of eco-tourism or even agri-tourism is only beginning to emerge.

There is also a great opportunity to strengthen linkages between the conservation of natural and cultural heritage, particularly in the wake of the establishment of Tharu Cultural Museum, a ‘living’ museum managed by Tharus and with its own clinic for dispensing traditional Tharu medicines (Section 4.2: 82-84).

11. What are the prospects that the project outcomes and benefits will be sustained after the project was closed in April 2006.

Community-based organisations and other income-generating activities initiated by the Project continue to be operational one year after the Project ended. Saving/credit cooperatives continue to function and support individual household members establish new income-generating schemes; alternative energy options are being replicated; and health care and veterinary programmes are underway. The nine community forests in the Buffer Zone, south of the Highway, have been handed over to the respective User Groups and are implementing the operational plans. Those 10 User Groups to the north of the Highway are awaiting policies to be determined regarding their management of forest. Apart from the north, where communities are feeling very insecure about their future management of forests, many of the Project benefits are likely to be sustained in the foreseeable future as described in the response to Question 6. NTNC anticipates being able to provide technical support and guidance to Project initiatives in the immediate future, as part of its continuing programme in Chitwan.

12. Has the project duly considered the recommendations of the Mid-Term Review and UNDP/GEF mission as well as suggestions given by UNDP CO?

Many of the recommendations of the Mid-Term Review and subsequent UNDP/GEF Assessment Mission were adopted by the Project, some of which resulted in radical changes to its direction and focus. These are discussed in Sections 3.2 (27-28) and 3.3 (36). **Two outstanding issues are community management of forest north of the Highway and speeding along the Highway within the Corridor (see Section 3.3: 38), both of which are highlighted in the response to Question 2.**

²⁴ Notably Chitwan National Park, which was inscribed on the World Heritage List in 1984.

13. Has the management regime of the northern portion of the corridor been agreed upon?

The management regime for the Corridor north of the Highway has not been agreed, despite major efforts by the executing agency to work with the Department of Forests. An agreement between NTNC and the Department was reached whereby a 300 m fringe of forest would be handed over to the local communities and the core area of the Corridor would be managed jointly by the communities and District Forest Office as *Protected Forest*²⁵. Regulations were drafted to this effect but, following a change in Director General, the Department shifted its position and is currently adhering strictly to its 2000 Forest Policy that *block forest* (i.e. non-isolated forest) in the Terai should not be allocated for community management. Consequently, the District Forest Officer is not in a position to transfer authority over forests north of the Highway to Community Forest User Groups. However, he has supported creation of these User Groups, which have implemented voluntary patrolling of their prospective community forests in anticipation of eventually receiving the authority to manage them.

This has been a major set-back for the Project, as indicated in the response to Question 1 and remains the top priority to address in the wake of the Project's completion. It provides an important opportunity for new policies to be pioneered by Government, using this Corridor as a test bed (see response to Question 2).

14. Are the plans (management plan and ecotourism plan for the BCF) as well as the strategies (financial sustainability and exit strategy) being implemented?

A management plan for the southern Buffer Zone was prepared in March 2005, endorsed and is currently being implemented by the Buffer Zone Development Council, with support and assistance from the National Park. That for the National Forest north of the Highway was also prepared in 2005 but its endorsement awaits policy on forest management by local communities. There is also an management plan for the entire Barandabhar Forest Corridor (Final Draft, February 2004), which was intended to unify the two separate plans for north and south of the Highway into a single integrated plan. Realisation of this intention awaits clarification of forest management policy in the northern section.

The *Barandabhar Corridor Forest - Ecotourism Management Plan 2004*, submitted by NTNC to Project partners in January 2005, awaits approval because of the outstanding uncertainty about the management of forest north of the Highway. Meanwhile, that part of the Plan relating to the south side of the Highway was incorporated in the above Buffer Zone Management Plan. There is no overriding strategy to the Ecotourism Management Plan: if anything, it reflects more of the same with respect to successes reaped by Baghmara and Chitrasen communities, rather than identifying the unique marketing opportunities within each community forest and, thereby, minimising potential competition. Activities are clearly related to strategies designed to address specific issues but the budget of NRs 24 million for 2005-2009 is summary and not supported by an Action Plan. It is unclear, therefore, how this Plan in its present form can be easily implemented in a focused and accountable manner.

The financial sustainability, replication and exit strategy study, undertaken in March 2005, provides action plans for July 2004 – June 2006, based on the logframe, and post-Project from 2006 to 2010. cursory examination of the 2004-2006 Action Plan suggests that most of the actions were undertaken, although targets were not necessarily achieved. For example, 1000 biogas plants and 2,500 improved cooking and rice husk stoves were targeted for promotion by June 2006 but only 187 and 1,304, respectively, had been distributed by 2005 (see Annex 4, 37). **The key action that does not seem to have been addressed is the institution of a Barandabhar Forest Conservation Committee to oversee the future management of the Corridor, following the end of the Project. This same body is identified at the apex of the governance structure for overseeing the implementation of the integrated management plan (Final Draft, February 2004). Without this body in place, it is difficult to appreciate how the post-Project Action Plan for 2006-2010 is being implemented in an accountable and coordinated manner.**

15. What impacts were seen on the project activities because of conflict and was project able to respond to those impacts?

The main reported impacts of the conflict on Project activities were: delays in delivering planned inputs; restricted mobility of project staff, jeopardising the certainty of technical backstopping; restricted mobility of Project vehicles; and an overall insecure and fearful working environment that contributed to a relatively high

²⁵ National Forest considered to be of special environmental, scientific or cultural importance may be declared as *Protected Forest* under the Forest Act, 2049 (1993).

turn over rate of staff in the initial years of the Project.

NTNC persevered with its work, albeit at a slow pace, and was well supported by the local communities. Responses to the situation included: changes in working arrangements and attitudes of staff to minimise the potential for any conflict with Maoists; greater transparency and closer working through community-based institutions to avoid suspicion about Project activities; employing local staff where possible; and adopting security measures as appropriate. The Trust's overall strategy in dealing with the conflict was successful as it managed to continue implementing the Project throughout the insurgency, without incurring any loss of life among its staff or damage to its field offices and equipment.

Doubtless there are many more delicate details that will emerge in due course as Nepal's political situation becomes more stable and secure. For example, to what extent was the Project compromised in its work by the Trust's former Royal patronage and to what extent did the very nature of the Project's objectives, in terms of poverty reduction and targeting disadvantaged groups, enhance its acceptability among communities that included Maoists among their members? This issue is discussed further in Section 3.2 (33-34).

86. Overall, the Project has had a profound impact on the future of the Barandabhar Forest as an ecological corridor and communities largely dependent on its natural resources for their livelihoods. It has provided the impetus to reverse a scenario of a deteriorating environment, coupled with increasing poverty, through a wide range of measures to establish and enhance the capacity of communities to conserve biodiversity within the Corridor while reducing dependency on its natural resources through provision of alternative livelihoods. The Project provides some evidence that biodiversity can be conserved and poverty alleviated in this Corridor through an integrated approach to conservation and development, albeit much more has to be achieved to demonstrate that interventions can be sustained over the longer term. The evidence is preliminary because existing data are inadequate and there has been insufficient time for biodiversity to have regenerated through natural processes and members of local communities to have developed alternative means of livelihood that do not erode the capital of the forest resource base within the Corridor. The evidence includes:

- good signs of regeneration of forest in the Corridor, based on survey results;
- initial signs of increasing biodiversity, in terms of species diversity and sizes of breeding populations of endangered species (rhinoceros and tiger); and
- improved livelihoods among at least 51% of the 3,500 households targeted for the introduction of a wide range of income-generating activities. This represents 10% of the 17,795 households within the Project area. (Note that improvements in livelihoods have not been quantified and compared with the available baseline socio-economic data.)

The key to the Project's achievements is the empowerment of local communities by instituting appropriate means of governance and resourcing members with relevant skills, particularly those who are poor and from disadvantaged groups. It must be recognised, however, that the status of the Corridor at the end of this Project is inevitably fragile and unstable in ecological terms with respect to its biodiversity and in socio-economic terms with respect to its local communities. The balance can be tipped either way, depending on the right policies being put in place and the extent to which institutional structures are consolidated and income-generating activities replicated among the entire community over the next 5-10 years.

87. EVALUATION The sustainability of the Project is assessed as marginally satisfactory. Good progress has been made in establishing a wide range of community-based institutions and income generating initiatives, all of which are functioning a year on from the end of the Project. Considerable efforts have been made to ensure that these will be sustainable over the longer term, as evidenced by the financial sustainability study and exit strategy that was completed in 2005²⁶. Many of the actions in the Action Plan accompanying this study have been addressed. However, the Evaluation Team has particular concerns about the Barandabhar Forest Conservation Committee, which has not

²⁶ *Study on financial sustainability, replication and exit strategies of TRCP in Sauraha, Chitwan*. Centre for Social and Economic Studies, Kathmandu, 2005.

yet been instituted despite a lapse one year since the end of the Project. It also has reservations about a few of the community-based institutions, specifically the Child Education Development Programme/Environment Teachers' Forum and Tharu Cultural Museum. Further considerations about the sustainability of the Project are given above in the responses to Questions 6 and 11. Finally, the continued presence of NTNC in the Chitwan area provides an unusual, additional and reassuring dimension to the sustainability of the Project, particularly in the immediate future when its political and technical and support is considered necessary to help reinforce and replicate the embedding of Project initiatives in the fabric of community livelihoods in and around the Corridor (see Section 5.2).

5.2 FUTURE PRIORITIES

88. The Project represents the beginning of an extremely important initiative, both locally with respect to the ecological functioning of the Corridor itself and more widely as an example of how biodiversity can be conserved at a landscape scale through the active support and engagement of local communities. In order to help ensure that management of the Corridor progresses without further delay, causing potential erosion of achievements to date, there are some clear priorities to be addressed as follows:

- i.** Barandabhar Forest Conservation Committee should be established immediately to steer and drive forward implementation of the *Barandabhar Forest Corridor Management Plan* (Final Draft, February 2004) in an integrated manner, as well as tackle other key issues highlighted below. It is proposed that this Committee, as conceived in this Management Plan, is born out of the former local Working Committee, to ensure strong local ownership. It may be appropriate to invite a locally well-respected, technically competent and independent individual to be its chairperson.
- ii.** Barandabhar Forest Corridor is represented on the Steering Group of the Terai Arc Landscape initiative by its Chairperson. This will provide a mechanism to ensure that:
 - (a)** management and development of the Corridor operate within the overall framework of this Landscape approach; and
 - (b)** the multi-sectoral conservation and community development interests of the Corridor are taken into account and supported at national level.
- iii.** A Coordinator or Manager is appointed by the Barandabhar Forest Conservation Committee to head a small, multi-disciplinary team responsible for implementing the Management Plan. It may be appropriate for this team to be established by seconding staff from the various partner organisations represented on the Steering Committee.
- iv.** No new developments, interventions or other activities, other than the above institutional and management arrangements, are initiated until the outstanding policy for the management of the National Forest north of the Highway is developed and officially regulated.²⁷ Members of the above Committee will need to be resolute in prioritising the resolution of this matter and determined in facilitating progress within their respective government agencies.

89. Once the above institutional, management and policy priorities have been addressed, efforts should focus on implementing the Management Plan. It is proposed that following framework is adopted in order to take into account the lessons learned from Project and the main findings and recommendations of this Final Evaluation:

- v.** Commission the following key pieces of **research** now in order to inform the implementation of the Management Plan and future management directions.

²⁷ Ongoing commitments and activities should continue but the key point is that integrated management of the Corridor will continue to be jeopardised until this policy is determined. Moreover, the longer the delay, the greater the insecurity of those communities north of the Highway and the potential erosion of their support for the future management of the Corridor.

- (a) A study of the behaviour of traffic and animals using the Highway in order to develop and enforce an appropriate strategy of minimising risks to people in vehicles and wildlife crossing the road (Recommendation 7).
 - (b) A repeat of the socio-economic baseline survey²⁸ in order to be able to assess changes five years on from 2002.
 - (c) An assessment of the impacts of changes in livestock farming practices, from free-ranging to stall-fed, on the environment and local livelihoods (Recommendation 12).
 - (d) Feasibility studies of further income-generating activities (Recommendation 13).
 - (e) An assessment of levels of participation by women and disadvantaged groups in governance (Recommendation 14).
 - (f) A strategic assessment of the distribution of landscape, biodiversity and cultural values of the Corridor and adjacent/nearby areas, and development of an overarching eco-/agri-tourism strategy to inform the implementation of the existing *Barandabhar Corridor Forest - Ecotourism Management Plan 2004*. This will need to be done with the active participation of the local communities in order to develop a shared vision of the Corridor as a tourist destination.
 - (g) A study of changes to grasslands in Chitwan Valley over the past 20-30 years to inform their future management within the Corridor, particularly as habitat for ungulates (Recommendation 8).
- vi. Consolidate what has been achieved by the Project by replicating income-generating activities, promoting the acquisition of multiple skills within households to provide families with year-round options for generating income, and addressing sustainability issues. Efforts should focus initially on the 3,500 households originally targeted by the Project and subsequently extend to other householders with the Project area. These efforts should be informed and modified, as appropriate, by findings from the above research, v (b, c and d).
 - vii. Identify, implement and enforce measures to control speeding along the Highway, based on the finding of the above study, v (a).
 - viii. Review and further develop, as appropriate, the *Barandabhar Corridor Forest - Ecotourism Management Plan 2004*, based on the above strategic assessment, v (f). It will be important to ensure that the Plan is consistent with the *Barandabhar Forest Corridor Management Plan*.
- 90.** Once the new management regime for the Corridor is firmly established, effectively functioning and has progressed well with the implementation of the Management Plan, it will be appropriate to consider longer term opportunities to enhance the role of the Barandabhar Corridor within the wider landscape. Specifically, the Barandabhar Forest Conservation Committee should promote an environmental assessment of the forest and communities immediately adjacent to the northern extremity of the Corridor, with a view to a new project being developed to address biodiversity and community needs in this portion of the Mahabharat Range. By this time, maybe 3-5 years hence, the Committee should be in a strong position to channel this *via* the Terai Arc Landscape Steering Group and re-enlist the support of UNDP and other donor agencies to kick-start the process of habitat restoration and community development.
- 91.** This framework provides the basis of a strategy and action plan for implementation by the Barandabhar Forest Conservation Committee over the next few years alongside or as part of the Management Plan. While some of the above research may require specific funding from national sources, feedback from local community groups and officials suggests that resources can be made available from village and district development committees and other local sources (e.g. user groups and savings or credit groups) to support income-generating activities. A further challenge for this Committee, therefore, will be to facilitate access to the necessary resources to implement those elements of the action plan that cannot be covered within the Management Plan budget.

²⁸ *Socio-economic, Demographic and Nature Conservation Situation in Project Area of Tiger/Rhino Conservation, Chitwan*. Dhanendra Veer Shakya, 2003. King Mahendra Trust for Nature Conservation, Kathmandu.

LESSON 11 Governments and donors should be prepared to maintain a long-term interest in the aftermath of integrated biodiversity conservation and community development projects of this nature, through periodic injections of political and financial support as appropriate.

RECOMMENDATION 18 The Government of Nepal, specifically the Ministry of Forests & Soil Conservation, should take the necessary steps to ensure that the Corridor is managed in accordance with the *Barandhabar Forest Corridor Management Plan*, priorities being to establish the Barandabhar Forest Conservation Committee and to formulate new regulations for managing National Forest. The Ministry should provide its full support to this Committee and be open to approaches to finance priorities that are unlikely to be resourced at local levels, notably those studies, surveys and assessments identified as necessary to inform future management of the Corridor.

RECOMMENDATION 19 UNDP Nepal should maintain a pro-active interest in the future management of the Corridor, particularly with respect to providing political support for the following priorities:

- establishment of the Barandabhar Forest Conservation Committee;
- representation of this Committee on the Terai Landscape Arc Steering Group; and
- policy formulation for management of the National Forest in the north of the Corridor.

RECOMMENDATION 20 The Government of Nepal and donors should anticipate the need to enhance the ecological role and integrity of the Corridor, several years hence, through the development of a new project in the Mahabharat Range adjacent to the northern boundary of the Corridor as part of the Terai Arc Landscape initiative.

92. Finally, none of the above is likely to happen without being championed by a lead institution. This role should be assigned to NTNC by mutual agreement among the Project's partners, given its role in executing the Project, long-term presence in the Project area and assurances of future commitment to the Corridor beyond the life of the Project. Its immediate role, which should be clearly defined and time bound, should be to facilitate the establishment of the Barandabhar Forest Conservation Committee and provide technical support in developing a strategy and action plan to address the above priorities alongside implementation of the Management Plan. This needs to be completed within the next six months in order to maintain the Project's momentum and the support of the local communities.

RECOMMENDATION 21 NTNC should facilitate the transition from the present end-of-Project scenario to a new phase in which the Corridor is managed as a cohesive unit in accordance with the Management Plan under the authority of the Barandabhar Forest Conservation Committee.

6. LESSONS LEARNED AND RECOMMENDATIONS

93. Lessons learned and recommendations, which are distributed throughout the previous sections for reasons of context, are collated in Table 6.1 for convenience. Each lesson or recommendation is numbered and cross-referenced to the relevant paragraph in the main text from which it was developed. In cases where recommendations have arisen from lessons learned, they appear alongside each other.

94. The final lesson (11, supported by 2) and associated recommendations (18-21) concern the potential involvement of the Government of Nepal, donors and NTNC in maintaining a long-term commitment to the management of the Corridor and its further enhancement. Particularly crucial is the transition to the next phase, which it is proposed that the Trust, with support from Project partners, should champion and facilitate.

Table 6.1 Lessons learned and recommendations, cross-referenced with the main text

No. <i>ref.</i>	Lessons learned	No. <i>ref.</i>	Recommendations
1 17	Given that sound Concept and Design are fundamental to successful project implementation, project partners have collective responsibility for ensuring that any existing or potential weaknesses are identified and taken into proper account, penultimately prior to signing the Project Document and ultimately during the development of the Inception Plan.	1 17	Adequate provisions should be made for reviewing the Project Concept and Design prior to signing the Project Document and, subsequently, during the development of the Inception Plan.
		2 17	Project Concept and Design cannot be divorced from Project Implementation. They should be subject to evaluation, including ratings, to provide for a more balanced Final Evaluation.
2 17	Three years is insufficient time in which to implement a project concerned with promoting and developing alternative means of livelihood among local communities, let alone monitor its impact. Five years should be considered a minimum, with provision for interventions over the longer term (up to 10 years) to consolidation and sustainability. [An alternative approach is to make such projects less ambitious, splitting them into a series of discrete components that are phased over a longer time frame.]		
3 39	Logframes are essential tools for monitoring the implementation of Projects in so far as they provide accountability in ensuring successful and timely delivery of outputs.	4 39	Where absent from the Project Document, a logframe should be developed at the outset of implementation. Where the executing agency has little or no experience in using the logframe, UNDP in its role as implementing agency should allocate sufficient time and resources to provide the necessary supervision and guidance in its use.
		5 46	The methodology for monitoring prey (ungulates) should be modified to include visual estimates of visibility each time an ungulate is sighted.
4 47	Successful institutionalisation of community-based forest and wildlife monitoring requires adequate training and resourcing, long-term supervision		

	and feedback of analysed results.		
5 51	Clear policies are fundamental to effective, goal-oriented management.	3 25	A new concerted approach is required to address the outstanding policy on the management of national Forest in the north of the Corridor. This may benefit from the services of an external facilitator and possibly a series of workshops to engage community representatives, Department of Forests, Department of National Parks & Wildlife Conservation and Ministry of Forests & Soil Conservation in appraising the different options and building consensus on the most appropriate way forward.
		6 51	Developing an appropriate management regime for the National Forest in the north of the Corridor is the number one priority.
6 52	Management interventions should be informed by rigorous science, with monitoring as appropriate, while also taking into account social, economic, political and other factors.	7 52	Undertake a census of vehicle and animal movements along the 3.8 km length of Highway that bisects the Corridor to inform the development and enforcement of appropriate measures to mitigate the movement of vehicles through a wildlife corridor, with respect to both the potential loss of human life and disturbance to wildlife.
		8 53	Future management of grasslands within the Corridor should be informed by an options appraisal, based on a study of ongoing changes to grasslands within the flood plain by a vegetation ecologist.
7 61	Partnership is the key to success for organisations sharing common goals. [Also see Lesson 10.]	9 61	More innovative approaches owned by local communities and supported by government should be explored to combat poaching of wildlife in the Corridor. These might include the declaration of the Corridor as a 'Community Safe Haven from Poaching.'
8 65	Volunteer time may be a scarcer resource than money to pay for effective delivery of outputs.	10 65	The model for raising awareness and participation in conservation among school students needs to be strategically reviewed from a resources perspective in order to secure longer term sustainability.
		11 71	Promotion of biogas has been inequitable and not benefited the poorest, landless members of disadvantaged communities within the Project area. Opportunities to introduce biogas to these members of communities should be reviewed and the necessary financial resources secured under the Clean Development Mechanism.
		12 73	A comprehensive review of the impacts (costs and benefits) of the changes in livestock farming, from free-ranging to stall-fed, should be undertaken, taking into account forest biodiversity, cropping patterns, nutrition cycles, use of fertilizers, alternative energy production (biogas) and time spent collecting fodder.
9 79	Economic feasibility studies should precede interventions to provide alternative and more sustainable means of livelihood. Moreover, a multi-skills approach to provision of alternative means of livelihood is likely to increase sustainability.	13 79	Priority should be given to replicating income generating activities among other households within the target group, while also adopting a multi-skills approach so that options for year-round income generation are available to a household. These interventions should be informed by the outcomes of feasibility studies.

		14 79	Future socio-economic monitoring should ensure that disaggregated data are generated for the analysis of participation of women and representatives of disadvantaged groups in decision making.
		15 79	An audit of environmental impacts and risks to health, supported by necessary research, should be undertaken for all income generating activities. This may require long-term monitoring as, for example, in the case of wool spinning for which protective masks are in use.
		16 82	Levels of participation in governance by women and those from disadvantaged groups need to be thoroughly assessed to ensure that future development activities are targeted strategically, thereby maximising social equity and providing options for all community members to avoid over-exploitation of natural resources.
10 85	Partnership working must be equitable and democratic in order to be in the interests of all parties. In the absence of a fair deal, independence may be a more sustainable strategy.	17 85	The Tharu Museum/Clinic management committee should seek to negotiate a fair deal with the Sauraha hoteliers or, alternatively, manage their own destiny and develop a unique package for visitors. For example, this might include the establishment of hourly return trips by bullock cart from Sauraha to the Museum for a minimum of NRs 100 per person.
11 91	Governments and donors should be prepared to maintain a long-term interest in the aftermath of integrated biodiversity conservation and community development projects of this nature, through periodic injections of political and financial support as appropriate.	18 91	The Government of Nepal, specifically the Ministry of Forests & Soil Conservation, should take the necessary measures to ensure that the Corridor is managed in accordance with the <i>Barandhabar Forest Corridor Management Plan</i> , priorities being to establish the Barandabhar Forest Conservation Committee and to formulate new regulations for managing National Forest. The Ministry should provide its full support to this Committee and be open to approaches to finance priorities that are unlikely to be resourced at local levels, notably those studies, surveys and assessments identified as necessary to inform future management of the Corridor.
		19 91	UNDP Nepal should maintain a pro-active interest in the future management of the Corridor, particularly with respect to providing political support for the following priorities: <ul style="list-style-type: none"> ▪ establishment of the Barandabhar Forest Conservation Committee; ▪ representation of this Committee on the Terai Landscape Arc Steering Group; and ▪ policy formulation for management of the National Forest in the north of the Corridor.
		20 91	The Government of Nepal and donors should anticipate the need to enhance the ecological role and integrity of the Corridor, several years hence, through the development of a new project in the Mahabharat Range adjacent to the northern boundary of the Corridor as part of the Terai Arc Landscape initiative.
		21 92	NTNC should facilitate the transition from the present end-of-Project scenario to a new phase in which the Corridor is managed as a cohesive unit in accordance with the Management Plan under the authority of the Barandabhar Forest Conservation Committee.

Annex 1 Terms of Reference

FINAL EVALUATION OF TIGER-RHINO CORRIDOR PROJECT

1. Project Summary

Project Title:	Landscape scale conservation of endangered tiger and rhinoceros populations in and around Royal Chitwan National Park		
Abbreviation:	Tiger Rhino Corridor Project (TRCP)		
Project Number:	NEP/00/G35, NEP/H01/001 (UNF) & NEP/00/005 (TRAC)		
Executing Agency:	National Trust for Nature Conservation (NTNC), UN Office of Project Services (UNOPS)		
Project Sites:	Barandhabar forest corridor, Chitwan		
Beneficiary Country:	Nepal		
Project Duration:	July 2001 – April 2006		
Budget:	UNDP, TRAC (1 & 2)	US\$ 103,700	
	GEF	US\$ 752,702	
	UN Foundation	US\$ 748,095	
	Government of Nepal (through NTNC (former)	US\$ 217,944	
	KMTNC)	US\$ 1,819,739	
	Total:		

2. Introduction to the project

The landscape scale conservation of endangered tiger and rhinoceros populations in and around Royal Chitwan National Park project (The Tiger-Rhino Corridor Project) was implemented in the area of the Royal Chitwan National Park (RCNP) and its buffer zone in the southern central Nepal. The project was launched in 2001, and was originally planned as a 3-year project. Eventually, after several extensions, it was carried out for five years until April 2006. The project was managed by the National Trust for Nature Conservation (NTNC), earlier KMNTC (King Mahendra Trust for Nature Conservation) on behalf of the Government of Nepal.

The project was launched with the aim of promoting landscape level biodiversity conservation with strong community based management links to conserve endangered species in and around the RCNP, a world heritage site. This project aims to conserve the only existing Barandabhar Corridor Forest that is important in terms of trans-boundary level conservation and serves as wildlife corridor for the movement of the wild animals from RCNP and adjacent Valmiki Tiger Reserve of India in the lowland to the ecologically significant upland forest of the Mahabharat range. Furthermore, communities in and around the Barandabhar forest rely heavily on natural resources for their livelihoods. Therefore, as a part of the project design, the project has been incorporating the socioeconomic development component aiming to reduce the human dependency on the declining natural resources while addressing the ecological problems, facing the landscape.

The project has been financially supported by three donors: the Global Environment Facility (GEF), the UN Foundation (UNF) and the United Nations Development Programme (UNDP). The financial support from GEF was assigned to support biodiversity conservation, particularly biodiversity management and monitoring, while the support from UNF was allocated to increase awareness on biodiversity issues among local people and enhancing the capacity of local communities, especially women and other target groups, for undertaking income generating activities, socio-economic and cultural development and promotion of indigenous knowledge. The support from UNDP was primarily targeted for activities in the areas of the indigenous knowledge, conservation of cultural heritage and environmental health. The UNDP country office acted as an implementing agent for the UNF and GEF funds. The project execution was carried out by NTNC in collaboration with Department of National Parks and Wildlife Conservation (DNPWC) through RCNP, Buffer Zone Council of RCNP and Department of Forests through Chitwan District Forest Office. These institutions played a key role in

operationalization of anti-poaching revolving fund to support anti-poaching activities and formulation of management plan for Brandabhar Corridor Forest.

The project area

The Royal Chitwan National Park, which covers an area of 932 km² was founded in 1973 and was declared as a UNESCO World Heritage Site in 1984. The park spans the four administrative districts of Chitwan, Nawalparasi, Parsa and Makwanpur. The park starts from the northern riverbank of Rapti near Ghatgai area and expands towards north, up to the foothills of the Mahabharat. The Royal Chitwan National Park has the last Nepalese population of Asian rhinoceros and it is also the last stronghold of the Royal Bengal tiger. Other threatened animals in the park include leopard, wild dog and wild Asian elephant as well as mugger crocodile and Indian python. Altogether 50 mammal species are found within the park. The park is rich in bird species and more than 500 species are found in the park. These include Bengal florican, lesser florican, white-necked stork, black-necked stork, and the sarus crane.

The conservation of wildlife corridors, especially ones maintaining elevation gradients, is identified as a major gap in the regional conservation area network in the Himalayan eco-regions (1998). To meet the goal of improving the landscape for conservation of endangered species in the Chitwan Valley, it was clear that extensions of Protected forest were needed to link Royal Chitwan National Park (RCNP) to its surrounding habitats outside the park. While the habitat connectivity already exists between the Royal Chitwan National Park and the Valmiki Tiger Reserve (area of 336 km²) in India, the only remaining forest patch connecting the park to the Siwalik forests and the Mahabharat Range in the north is the Barandhabar (*Tikauli*) forest (70.1 km²). This forest serves as an essential migration corridor for flagship species like the tiger and rhinoceros, so that these species have access to upland habitats. The Barandhabar forest also contains the Bish Hazar Tal, one of the important wetlands in Nepal, and a critical habitat for many species of migratory and aquatic birds and the mugger crocodile.

Previously the Barandhabar (*Tikauli*) forest has been an important source of natural products such as fodder, fuelwood and timber for the people of the surrounding villages. These actions put pressure on critical ecosystem and encroachment through expansion of agricultural land has reduced the total area of habitat available to wildlife. Due to previous resettlement actions and social situation, including poverty and population growth, the pressure on the Barandhabar forest has increased so that the minimum width of the forest is approximately 2.1 km.

3. The Project Development Objective / Goal

The main objective of the Tiger-Rhino project was to conserve biodiversity in and around the Royal Chitwan National Park, a World Heritage Site, particularly by promoting biodiversity conservation at a landscape level and in particular by securing habitat connectivity through management and rehabilitation of a critical wildlife corridor.

Project Outcomes

In order to meet the goal of the project, three outcomes have been identified:

- Critical ecosystem within Brandabhar corridor forest (BCF) managed and restored.
- Pressure on the resource in BCF reduced.
- Improved and diversified economic options outside BCF provided.

Following results were expected at the end of the project:

1. Improved management and increased scientific knowledge of the Barandabhar corridor.
2. Strengthened and more effective anti-poaching unit eliminates illegal hunting.
3. Ecological restoration and effective management of key grassland ecosystems.
4. Establishment of community based conservation model with capable local institutional structures ensuring long-term management of natural resources.
5. Increased environmental awareness for local institutions and communities.
6. Reduction of local pressure on natural resources by provision of alternative livelihood options such as agro-forestry, livestock development and eco-tourism.

7. Increased participation of women in natural resources management through skill and awareness enhancement.
8. Enhancement of biodiversity conservation practices through application of local indigenous knowledge.

According to the project log-frame (revised 2003) the project had following measurable indicators

1. Existing species diversity in Barandabhar corridor forest maintained in comparison of 2002 baseline
2. Prey species observation records in 2006 increased compared to the level of 2002 record
3. Forest growing stock maintained in the BCF as per base line data of 2002
4. Degraded forest in bottleneck area of BCF restored with regeneration
5. Household income of Community Based Organizations (CBOs), particularly disadvantaged groups (Tharus, Chepang, Tamang, mushhar, Bote, Gurung, Magar and all Dalits) increased compared to 2002 baseline

The **mid-term review (MTR)** for the project was carried out in February 2003. The MTR found good progress in many of the project objectives. Especially project outputs linked to the income generation, community forestry and indigenous knowledge and technology had produced positive results. The MTR made also several recommendations, including extension to the project time, so that the project goals could be met and the project activities would sustain in the long run.

The MTR also brought up several issues for the project to consider and some key recommendations, including:

1. Options to overcome the Project management staffing inefficiency,
2. Review staffing to reduce numbers, seek a more efficient matching of qualifications to roles, and identify and provide capacity building.
3. Provide further training for wildlife monitoring staff.
4. Pay closer attention to marginalised groups in community interventions.
5. Monitor ethnicity, caste and gender in all TRCP community activities.
6. Define, document and implement a strategy for the full range of training activities and institution building carried out under the TRCP
7. Immediately begin the development of a Project exit strategy that is not dependent on additional funding.
8. NTNC to make a clear distinction between activities funded through the TRCP and those funded from other sources.
9. NTNC to be more proactive in encouraging working linkages with other organisations
10. The Chitwan District forest Coordination Committee to be kept informed on the BFC biodiversity management initiative.
11. UNDP and NTNC to re-focus the Project through a range of actions, with special reference to studies of tiger, tiger prey and rhino studies in relation to the corridor 'bottleneck'.
12. NTNC should proceed to initiate a process that will lead to an interim biodiversity management plan that has flexibility to accommodate both the 'corridor' and the 'extension' concepts of Barandabhar forest biodiversity.

MTR identified also several threats to the project:

- The effects of a planned ring-road going through the corridor area.
- Possible impacts of people relocations by the Maoist insurgency or other relocation and settlement plans to the north eastern section of the corridor.
- Obstacles to animal movements created by the steep Khageri Irrigation Canal
- Water seepage to the irrigation canal threatens the water levels of the Bis Hazari lakes.
- Recently introduced water hyacinth that has proliferated in the lakes is degrading habitat for some aquatic species

In November 2003, a **UNDP/GEF Assessment Mission** was carried out. The mission focused on the implementation of the earlier recommendations made by the MTR and made the following recommendations for immediate actions not later than the next TPR.

- A peer review on validity assessment of the ecological viability of the corridor to be done by an external consultant by March 2004
- A management plan for the whole of the corridor, divided into two parts (northern and southern) by the national highway passing through the middle of the corridor, to be formulated by March 2004. Before that a decision regarding the management regime for the northern part of the corridor to be taken by the government²⁹.
- A strategy for income generation for the poor communities depending upon corridor resources to be developed by the project by March 2004 and implemented immediately till the end of the project.
- A financial sustainability and replication strategy to be prepared by the project before March 2004 and implemented immediately after that.

Several assessment, reviews and studies were conducted during the project period.

These include:

- A UNF review undertaken in February 2002
- A case study as part of the GEFSEC Financial Sustainability Review study in May 2002
- Ecotourism Enterprise Case Study (UNDP/GEF 2002)
- A UNDP/GEF Mid-Term Evaluation in February 2003
- Assessment of corridor Function of Barandhbar forest, by KMTNC (October, 2003)
- Financial Sustainability Plan
- Baseline Survey on Socio-economic, Demographic and Nature Conservation Situation in Project Area of Tiger/Rhino Conservation Sauraha, Chitwan (2003)
- Tourism Management Plan (2003)
- Barandhbar Forest Management Plan (2004)
- UNDP/GEF Mission Report November (2004)
- Validity of Ecological Significance of the Barandhbar forest (2004)

4. The Objectives of the Evaluation

The overall purpose of the evaluation is to examine the concept, design, implementation modality, efficiency, effectiveness, relevance, impact and sustainability of the project. The evaluation will assess the extent to which the project has achieved its objectives; analyze the methods used and the ways in which progress was made. The evaluators are also requested to prepare detailed, analytical and feasible recommendations and lessons learnt for future comparable UNDP/GEF projects. The evaluation team is also expected to throw light upon the overall working environment in Chitwan for the project during the time when political conflict in the country was rampant.

The aspects and questions presented here should be taken as guidance for the evaluation and should not be interpreted as a limitation to the issues to be analyzed during evaluation. The evaluation team is encouraged to raise all issues during the study that are found appropriate to the goals of the project and objectives of the evaluation independent of them being mentioned here or not.

5. Scope of the Evaluation

- Assess progress towards attaining the project's contribution to achieve national and global environmental objectives (national objectives are to ensure sustainable use of biodiversity resources while the global objectives remain to safeguard biodiversity of global importance and contribute to reduce global environmental impacts from loss of biodiversity at the local level);
- Assess the recent developments and current status of conservation policies³⁰ connected to the project goals and sustainability of project outcomes
- Assess the achievement of project outputs and outcomes (including the assessment of planned and actual expenditure against outcomes);

²⁹ National highway crosses the corridor in the middle dividing it into two parts. The portion of the corridor to the South of the highway belongs to the Buffer Zone of Chitwan National Park and managed by the Buffer Zone Council as per buffer zone regulations. The portion of the corridor to the North of the highway belongs to national forest and is managed by District Forest Office under forestry legislation.

³⁰ The Ministry of Forest and Soil Conservation of Nepal has taken policy decision to manage the northern portion of the Brandabhar corridor as "protection forest" under the prevailing forest law. However, the rules and regulations related to this have not yet finalized; and therefore Brandabhar forest management plan could get formal approval.

- Review and evaluate the extent to which project impacts have reached the intended beneficiaries;
- Assess the level of public involvement in the project;
- Assess the likelihood of continuation of project outcomes and benefits after termination of GEF and other funding;
- Assess the roles and responsibilities of UNDP as Implementing Agent of the GEF and UNF funds in support of achieving the project outcomes and outputs as specified in the pro-doc.
- Assess the role played by NTNC in establishing mechanism of effective coordination among the local and national partners, academic institutions and donors
- Describe the main lessons that have emerged in terms of:
 - strengthening country ownership/drivenness in conservation of corridor ecosystems especially in the Chitwan area in terms of commitment of the local people and their institutions, local and national governments and other key conservation partners
 - strengthening stakeholder participation in the process of applying participatory integrated conservation and development approaches; application of adaptive management strategies pursuant with new kind of learning gathered during programme implementation to orient the programme for achieving its goal; efforts to secure sustainability;
 - transfer of knowledge gained through this project in management of corridor in other areas of Nepal;
 - Effectiveness of project monitoring and evaluation mechanism in terms of improving project performance to produce quality and timely outputs.
- Identify and prioritize the possible development and conservation needs or opportunities in the area and make practical suggestions and recommendations for future actions.
- Assess the impact of armed conflict on project implementation towards achieving the results.

The main emphasis of the evaluation is on the lessons learned, so that experiences from this project can be taken further to the other UNDP/GEF projects on the sector. In describing all lessons learned, an explicit distinction needs to be made between those lessons applicable only to this project, and lessons that may be of value more broadly, including to other, similar projects in the UNDP/GEF pipeline and portfolio.

6. Key questions

- Have the planned outputs and outcomes been achieved? If not, what are the reasons for that?
 - Has the project facilitated for any policy change related to conservation of forest corridor in Nepal or overall conservation policies related to biodiversity conservation and national park management in relation to the project goals?
1. Has the project built the capacity of the concerned stakeholders including the Royal Chitwan National Park, the buffer zone management, the district forest office as well as the local community institutions such as forest user groups, so that the corridor management is capable of carrying on the biodiversity conservation (planning, management and monitoring)? If not, why not?
 - Assess the relevance of the project methodology chosen to achieve the project goals on biodiversity conservation with the emphasis on corridor ecology and protection of rhinoceros and tigers as well as other mammals.
 - Is the management information system established within NTNC Office at Chitwan being regularly updated and information effectively used for further conservation planning and monitoring?
 - Has the project created sustainable and replicable income generating schemes that contribute to biodiversity conservation?
 - How well are the Anti-Poaching Units and other endowment funds created by the project functioning and are they sustainable in the long-term without external funding or support?
 - How relevant have the project interventions been for the target beneficiaries? Has the project provided tangible benefits to help them improve their income level and adapt diversified livelihood options?
 - Has the level of public awareness on biodiversity conservation issues increased and subsequent public support for conservation activities enhanced?
 - Has the project been able to create demonstrable linkages between local benefits and global environmental benefits?
 - What are the prospects that the project outcomes and benefits will be sustained after the project was closed in April 2006?

- Has the project duly considered the recommendations of the Mid Term Review and UNDP/GEF mission as well as the suggestions given by UNDP CO?
- Has the management regime of the northern portion for the corridor been agreed upon?
- Are the plans (management plan and eco-tourism plan for the Barandhabar corridor forest) as well as the strategies (financial sustainability and exit strategy) being implemented?
- What impacts were seen on the project activities because of conflict and was project able to respond to those impacts?

7. Evaluation criteria

The key criteria for the evaluation include:

- Efficiency: the amount of outputs created in relation to the financial and human resources invested;
- Effectiveness: the extent to which the planned outputs and outcomes are being achieved;
- Relevance: to what extent the project is addressing problems of high priority, mainly as viewed by the stakeholders;
- Sustainability: national ownership and guidance by the Government;
- Management arrangements: the extent to which management arrangements support the above.

8. Methodology for the Evaluation

The evaluation team will decide on the concrete evaluation methodology to be used, which will be shared with the UNDP CO and UNDP/GEF RTA ahead of the evaluation for comment. However the following elements are listed here for guidance:

- Obtain initial briefings from UNDP/GEF regional office on the objectives and scope of the evaluation, go through the UNDP and GEF requirements for final evaluations (the GEF M&E policy of 2006 as well as guidelines for terminal evaluations, UNDP M&E policy), and clarify any issues as required. Familiarization with TORs and further modification based on mutual agreement if needed;
- Desk review of relevant documents (GEF approved project brief, the UNDP project document, Annual Project Reports (APRs and PIRs), mid-term evaluation report, peer review report, other relevant documents);
- Interviews with and participation of partners and stakeholders;
- Consultation meetings;
- Field visit to Chitwan area
- Draft the report and make a presentation of findings and recommendations to specify govt. stakeholders, NTNC, local communities, UNDP CO. UNDP/GEF and other relevant stakeholders;
- Finalize the report with comments and inputs from various stakeholders by first week of Feb 2007;

9. Evaluation Team

The team will consist of one international consultant and two national consultants who will participate for the entire duration of the evaluation. The international consultant will be designated as team leader and will carry out overall responsibility for organizing and achieving the evaluation and delivery of a final report.

- **Team Leader / Conservation Consultant (international):** Academic and/or professional background (minimum MSc degree) in natural resource/protected area management or related fields with experience in terrestrial biodiversity conservation and an understanding of the landscape ecology approach is required. S/he should have a minimum of 10 years relevant working experience. S/he must be highly familiar with ICDP or community-based natural resource management projects in developing countries - particularly in Asia – either through managing or evaluating large-scale donor-funded projects. Substantive knowledge of participatory monitoring & evaluation processes is essential. Country experience in Nepal is a distinct advantage. Experience in the evaluation of technical assistance projects, if possible with GEF or UNDP and

major donors is mandatory. A demonstrated understanding of GEF principles and expected impacts in terms of global benefits is essential. Excellent English writing and communication skills (including word-processing) will be required. Demonstrated ability to assess complex situations in order to succinctly and clearly distill critical issues and draw forward looking conclusions is a must. Experience in leading multi-disciplinary, multi-national teams to deliver quality products in high stress, short deadline situations will be required.

- **Conservation Consultant (national):** S/he must hold a minimum of MSc degree in natural resource management and related fields with a minimum of 5 years of relevant experience. Previous work in designing, managing or evaluating GEF biodiversity conservation projects is an asset. Knowledge of national and international conservation institutions/projects is needed. Demonstrated understanding of both conservation and development decision-making processes at the national and provincial level is essential. Previous experience in any of the areas covered by the project is a distinct advantage. Proficient English writing and communication skills (including word-processing). Ability to act as translator for international counterpart and to translate written documents from/to Nepalese is essential.
- **Social and Gender Consultant (national):** a minimum of Masters degree in sociology, gender or related area with a minimum 5 years of progressive work experience, combining social issues and gender is required. Preferably s/he should be familiar with the national policy issues, priorities, and institutional mechanism and programme/project implementation. Particularly knowledge and experience on participatory development and community organisations will be valuable. Previous working experiences in the formulation of projects, producing project documents and evaluating community development and/or conservation programmes will be an asset. S/he should have excellent presentation and report writing skills in English. S/he should be creative and have good interpersonal skills. Overall features of excellent presentation abilities, clear articulation of ideas and effective communication skills are required.

10. Duration

The consultant team will be recruited for a period of 2 weeks. During the contract period each team member is expected to provide the following working time input:

- Team Leader / International Conservation Consultant, 2 weeks
- Conservation Consultant, 2 weeks
- Social and Gender Expert, 2 weeks

11. Implementation Arrangements

UNDP in Nepal will be in charge for logistics arrangements, field visits and meeting programme. In addition, NTNC staff will accompany the mission to gather basic data, set up meetings, identify key individuals, assist with planning and logistics, and generally ensure that the evaluation is carried out smoothly.

12. Evaluation Products

The evaluation team is expected to produce a Final Evaluation Report (no more than 40 pages, excluding Executive Summary and Annexes) **which should also include ratings on the following two aspects:**

1. **Sustainability**
2. **Outcome/Achievement of objectives**

Evaluators are also encouraged to provide ratings for three key areas included in the final evaluation:

3. Implementation approach;
4. Stakeholder participation / public involvement; and
5. Monitoring & Evaluation.

The ratings will be: Highly Satisfactory (HS), Satisfactory (S), Marginally Satisfactory (MS), Marginally Unsatisfactory (MU), Unsatisfactory (U) and Highly Unsatisfactory (HU).

The report will be handed over to the UNDP in hard copy and in electronic format, preferably both as MS Word document and PDF files. The final version has to be proof-read and otherwise in a form allowing direct distribution.

The report should be structured as follows:

Acronyms and Terms

Executive Summary (no more than 4 pages): The Executive Summary should briefly explain how the evaluation was conducted (including the methods of verification) and provide the summary of contents of the report and its findings.

Project Concept and Design: This section should begin with the context of the problem that the project was design to address. It should describe how effectively the project concept and design dealt with the situation, with a focus on the consistency and logic of the project strategy and the log frame. Different planning and assessment documents, (i.e. project document, mid-term evaluation, peer review and other docuemnts) and work plans should be reviewed.

Project Implementation: If the project was well-designed, the next question to ask is was the project well-implemented? How efficient was the implementation? Have inputs been successfully converted into outputs? Did we do things right?

Project Results: This section should be an assessment of how successful the project has been in terms of achieving its immediate and development objectives. Were activities and outputs successfully converted into outcomes and results? If not, why not?

Project Impact and sustainability: This section should assess the overall and long-term effect of the intervention, and sustainability of the results after the termination of the project. How are the prospects that the planned broader impacts will be achieved? Will benefits and activities continue after the end of the project?

Main Findings: The main points or conclusions of the evaluation.

Lessons Learned: This is a list of lessons that may be useful to other projects. It can, if applicable, also include some recommendations for UNDP considering new programming in biodiversity conservation field and for NTNC relating to the future actions and options in Chitwan area as well as lessons regarding implementing project in conflict.

List of Annexes (Terms of Reference, Itinerary, Persons Interviewed)

Annex 2 Itinerary and schedule of meetings

Date	Time	Activities and meetings
		Kathmandu
17 April	am	Arrival in Kathmandu
	pm	Evaluation Team meet with Vijaya P. Singh, UNDP and NTNC
18 April	1000-1200h	Security briefing at EOC, UNDP
	1400h	Dr Pralad Yonzon, Director, Resources Himalaya, Kumaripati
	1530h	Dr. Siddhartha Bajracharya, Member Secretary, NTNC, Jawalakhel
19 April.	0900h	Mr. Anil Manandhar, Country Director, WWF-Nepal, Baluwatar
	1120h	Fly to Bharatpur by BHA 353 (Buddha Air)
		Field visit
	1300-1700h	Meeting with BCC Staff, presentation of Project and discussion
	1830h	Dinner hosted by Biodiversity Conservation Centre
20 April	am	Visit bee farm Meet health post management committee members Observe fencing and regeneration of Chaturmukhi Community Forest Meet veterinary centre management committee - see buffalo, goats Meet wool spinning groups
	pm	Meet savings and credit groups Visit mushroom farm Visit bottle neck area, community nursery and ICS trainer
21 April	am	Visit Tharu Cultural Museum, Gurau clinic, medicinal plant nursery and meet Museum and Chitwan Tharu traditional skill and knowledge management committees
	pm	Meet Local Working Committee members Visit veterinary clinic at Gitanagar and meet dairy farmers and AHW Meet Community Forest members, anti-poaching youth awareness group at Devnagar Drive along the community forest, visit Beeshazar
	evening	Review logframe with NTNC
22 April	am	On elephant back: visit Barandabhar Corridor Forest (Khorsor area) to see wildlife monitoring transects and camera trapping in operation Visit Baghmara community nursery and meet CF members Visit Musahar Tal and meet community members
	pm	Visit Mohana school, meet ETF members, observe Green Force Club activities, discuss scholarship program Visit biogas, handicraft making and duck farms Meet with literacy class participants at Mangalpur
23 April	am	Workshop session with NTNC staff to review Project activities
	1155h	Depart for Kathmandu
		Kathmandu
	1600h	Mr. Mohan Dhungel, Deputy DG, Department of Forests, Babarmahal
24 April	0845h	Mr Ghulam M. Isaccai, Deputy Res. Rep, Programme
	all day	Report drafting
25 April	evening	Dr Sultana Bashir, Regional Technical Adviser, UNDP-GEF Bangkok
26 April	0830h	Progress review with Vijaya Singh
	am	Report drafting
	1430h	Preliminary feedback to NTNC
27 April	am	Presentation preparation
	1400-1615h	Stakeholder feedback meeting, Central Zoo, Jawalakhel
	1630h	Mr. Matthew Kahane, Resident Representative, UNDP
28 April	all day	Report drafting
29 April	all day	Report drafting and final meeting with Vijaya Singh prior to departure

Participants at Stakeholder Feedback Meeting, Friday, 27 April 2007, Central Zoo, Jawalakhel

	Name	Designation/Organisation
1.	Vijaya Singh	UNDP Nepal
2.	Krishna Pd. Bhurtel	BZMC Chairman, Chitwan National Park
3.	Sultana Bashir,	UNDP (GEF), Regional Technical Adviser
4.	Siddhartha B Bajracharya	NTNC, Member Secretary
5.	Dinesh Bhaju	Resources Himalaya
6.	Jitendra Raj Onta	NTNC
7.	Top B. Khatri	Freelance
8.	Gernot Brodnig	UNDP Bangkok
9.	Darsani Desilva	UNDP Sri Lanka
10.	Ganga Jung Thapa	NTNC, National Programme Director
11.	Jhamak B. Karki	Department of National Parks & Wildlife Conservation
12.	Mahary Koirala	Ministry of Forests & Soil Conservation
13.	Bindu Mishra	Department of Forests
14.	Bidur Pokharel	NTNC
15.	Rupa Basnet,	NTNC, Programme Officer
16.	Ram Chandra Nepal,	NTNC/BCC, Project Coordinator
17.	Binod Basnet,	NTNC, Program Officer
18.	Bishwa Prakash Adhikari,	NTNC, Administrative Asstistant
19.	Radhika Regmi	Evaluation Team
20.	Sagendra Tiwari	Evaluation Team
21.	Michael Green	Evaluation Team

Annex 3: Persons met/interviewed in field

National Trust for Nature Conservation	
1. Mr. Ganga Jung Thapa	9. Mr. Kapil Prasad Pokharel
2. Mr. Bidur Pokharel	10. Mr. Prabesh Pratap Rana
3. Mr. Ram Chandra Nepal	11. Mr. Rishi Ram Subedi
4. Mr. Ram Kumar Aryal	12. Mr. Yogendra Tamang
5. Mr. Dipesh Bista	13. Mrs. Devaka Siwakoti
6. Mr. Bishnu Bdr. Lama	14. Mr. Rajesh Kumar Jha
7. Mr. Sanjit Dhamala	15. Mr. Ananda Ram Thapa
8. Mr. Shanakar Chaudhary	
Musahar community members	Baghmara Community Forest Members,
1. Bagada Majhi - Chairperson of Mushar Tal,	7. Manoj Mahato - Baghmara CF
2. Basanti Majhi,- Mushar Tal	8. Shiva Narayan Mahato- Baghmara CF
3. Bagawati Majhi,- Mushar Tal	9. Prakash Dhakal - Baghmara CF
4. Kusumi Majhi,- Mushar Tal	10. Singh Bdr. Tamang - Baghmara CF
5. Bisara Majhi,- Mushar Tal	12. Ajit Mahato - Baghmara CF
6. Rup Lal Majhi,- Mushar Tal	13. Sonia Chaudhary- Baghmara CF
Community Forest members, Anti-poaching Youth Awareness Group at Devnagar	
1. Bamdev Adhikari	Chairperson of Barandabhar BZ User Committee.
2. Hari dutta Mishra	Chairperson of Batuli Pokhari BZ CF
3. Babu ram Naupane	Chairperson of Dakchhinkali BZ CF
4. Bishnu Pd Sharma	Dakchhinkali BZ CF
5. Rajeev Naupane	Chairperson of SDEP Society
6. Chandi Pd Naupane	Devnagar, Dakchhinkali BZ CF
7. Rishi Gurung	Coordinator of anti-poaching youth awareness group
8. Birendra Mahato	Treasurer of anti-poaching youth awareness group
9. Ganesh Naupane	Dakchhinkali BZ CF
10. Chiranjivi Gautam	Dakchhinkali BZ CF
11. Bagwati Chapagain-	Navajyoti BZ CF
12. Parbati Naupane	Navajyoti BZ CF
13. Suryabati Dhakal	Navajyoti BZ CF
14. Laxmi Naupane	Dakchhinkali BZ CF
15. Srijana Raut	Navajyoti BZ CF
16. Rama Adhikari	Navajyoti BZ CF
17. Krishna Pd Rijal	Batuli pokhari BZ CF
Local Working Committee members	
1. Krishna Pd Bhurtel	Chairperson of BZ Development Council
2. Jagan Nath Thapaliya	Chairperson of CTDC
3. Babu ram Puri	Formal Chairperson of Padampur Relocation Committee
4. Bhairab Ghimire	Assistant Forest Officer of DFO
5. Kamal Junga Kunwar	Acting Chief Warden of CNP
6. Basu Dhugana	Chairperson, Mrigakunja BZ User Committee
7. Ram Prit Yadav	Formal Chief Warden of CNP
Veterinary Centre Committee Members	
1. Ghansyam Giri, Chairperson	7. Thakur Pd Adhikari
2. Kamala Bhattra	8. Bhumeshor Dhugana, formal chairperson
3. Bal Ram Paoude	9. Rabindra Pokhrel
4. Sita Giri	10. Birendra Chaudhary
5. Mina Chaudhary	11. Ram Chandra Mahato
6. Arna Pd Acharya	
Chaturmukhi Community Forest members	
1. Raju Rai, - Chairperson	13. Sangeeta Gurung
2. Surya Bdr. Gurung, - Vice chairperson	14. Bimala Thapa
3. Asha Tamang, - Treasurer	15. Krishna Bdr. Karki
4. Danda Pd Ghimire, - Secretary	16. Ganga Pd. Ghimire
5. Prem Bdr. Gurung	17. Mani Lal Shrestha
6. Surya Bdr. B. K.	18. Chet K. Sunuwar
7. Bhakta Bdr. Shrestha	19. Bishnu Maya Karki
8. Hom Bdr. K. C.	20. Buddhi Lal Thapa
9. Laxmi Shrestha	21. Jit Bdr. Tamang
10. Krishna Maya Karki	22. Prem Bdr. Tamang
11. Kamala Lopchan	23. Kabindra Gurung
12. Kalpana Koirala	

Navajagriti Community Forest members

- | | |
|--|-------------------------|
| 1. Postak Pd Gautam, - Chairperson | 9. Chandra Bdr. Kumal |
| 2. Netra Pd Adhikari, - Vice-chairperson | 10. Dilli Raj Gurung |
| 3. Krishna Pokhrel, - Treasurer | 11. Lok Bdr. Lama |
| 4. Ishwor Tiwari, - Secretary | 12. Bishnu Maya Paudel |
| 5. Ganesh Lamichhane, Vice Secretary | 13. Devraj Thapaliya |
| 6. Ghansyam Ghimire | 14. Deepak Thapaliya |
| 7. Geeta Regmi | 15. Khem Nath Chapagain |
| 8. Bishnu Kumari Sapkota | |

Wool spinning Womens' Groups at Padampur

- | | |
|---------------------------------------|---|
| 1. Kanchhi Maya Praja, - Praja Utthan | 14. Basundhara Subedi, - Pragati |
| 2. Maiya Aryal, - Praja Utthan | 15. Rupani Chaudhary, -Pragati |
| 3. Nisha Praja, - Praja Utthan | 16. Sunita Chaudhary, - Pragati |
| 4. Nir Maya Praja, - Praja Utthan | 17. Soniya Chaudhary, - Pragati |
| 5. Phul Mati Praja, - Praja Utthan | 18. Mina B. K., - Chepang tatha Janjati |
| 6. Sukhiya Pariyar, - Bhimodaya | 19. Ishyalu Maya Praja, - Chepang tatha Janjati |
| 7. Durga Pariyar, - Bhimodaya | 20. Dil Maya Gurung, -Chepang tatha Janjati |
| 8. Pabitra Gurung, - Bhimodaya | 21. Buddhi Maya Ghale, - Buddhi Jyoti |
| 9. Radhika B. K. - Omsanti | 22. Madhu Maya Bhujel, - Buddhi Jyoti |
| 10. Surjee Raut, - Omsanti | 23. Nir Maya Praja, - Buddhi Jyoti |
| 11. Budhiya Chaudhary, - Omsanti | 24. Bishnu Maya Magar, - Buddhi Jyoti |
| 12. Sunita Bote, - Pragati | 25. Suk Maya Tamang, - Buddhi Jyoti |
| 13. Sumitra Chaudhary, - Pragati | |

Literacy class - Uchha Himali Womens' Group at Mangalpur

- | | |
|-----------------------|-----------------------------|
| 1. Chitra kumari Ojha | 10. Rupa Magar |
| 2. Sarita Darai | 11. Mangali Nepali |
| 3. Tuli Maya Gurung | 12. Khadga Maya Gurung |
| 4. Santa Maya Tamang | 13. Krishna Kumari Shrestha |
| 5. Buddhi Maya Gurung | 14. Kamala Devi Shrestha |
| 6. Durga Devi Upadhya | 15. Man Maya Gurung |
| 7. Ash Maya Gurung | 16. Rupa B. K. |
| 8. Samjhana Darai | 17. Sasi Thapa Magar |
| 9. Sunita B. K. | 18. Laxmi Dangol |

Handicraft Making - Dibya Jyoti Womens' Group

- | | |
|-------------------------|-------------------------|
| 1. Raj Kumari Mahato, - | 14. Hari Kala Chaudhary |
| 2. Sita Mahato | 15. Surujee Chaudhary |
| 3. Sumitra Mahato | 16. Rami Chaudhary |
| 4. Sujani Chaudhary | 17. Bikramiya Chaudhary |
| 5. Subhadra Chaudhary | 18. Sitasma Chaudhary |
| 6. Sita Chaudhary | 19. Rita Chaudhary |
| 7. Janaki Chaudhary | 20. Anita Chaudhary |
| 8. Chaniya Chaudhary s | 21. Balkumari Chaudhary |
| 9. Januka Chaudhary | 22. Kalika Chaudhary |
| 10. Seti Chaudhary | 23. Parbati Chaudhary |
| 11. Suk Maya Chaudhary | 24. Santi Chaudhary |
| 12. Ashomati Chaudhary | 25. Kabita Chaudhary |
| 13. Laxmi Chaudhary | 26. Babita Chaudhary |

Annex 4 Summary evaluation of project achievements by objectives and outputs

[Project period: July 2001 to April 2006]

OBJECTIVES ¹ Outputs ³¹	Objectively Verifiable Indicators ¹	Status at Project Completion ³² [30 June 2006]	Final Evaluation [April 2007] Evaluation comments and ratings ³³	H S	S	M S	M U	M U	H U
DEVELOPMENT OBJECTIVE Biodiversity in and around RCNP conserved	Existing biodiversity in and around Royal Chitwan National Park maintained and further degradation of biodiversity controlled	The degraded habitat has been rehabilitated and wildlife habitat have been extended and improved.	Existing biodiversity in the Corridor has been maintained and there is evidence of some increase in species diversity. Degradation has been significantly reduced through providing communities with alternative means of meeting subsistence needs and income generation. Regeneration of the vegetation is quantified as good to fair (based on forestry standards), to which large mammals appear to be responding in slowly increasing numbers.						
IMMEDIATE OBJECTIVE 1 Critical ecosystems within BFC managed and restored	<p>By end of project:</p> <p>1. Existing number of species (250 plants, 25 mammals, 290 birds) inside BFC maintained.</p> <p>2. Prey species density (0.8 individual per sq. km.) is maintained in bottleneck area <i>increased compared to the level of 2002 record.</i></p>	<p>1. 311 species of birds (Based on the data from 2002 to 2006) were recorded. Sighting of rhinoceros increased with reference to 2002 with total sighting of 28 and 29 rhinoceros during monsoon and post monsoon seasons of 2006.</p> <p>2. Increase in more palatable plant species with increase in sighting frequency of the ungulates (Spotted deer- 5037 Barking deer-102, Sambar deer). Population density of prey species per km² (as of September 2006) is 74.02 compared to 25.6/ km² in 2002</p> <p>NB Either September 2006 is a typing error, or the date of 30 June given in the column heading is incorrect [Evaluation Team].</p>	<p>NB Higher rating is jeopardised by lack of robust/verifiable data.</p> <p>1. Species diversity has been maintained. Some evidence of slight increase in diversity but uncertain of extent to which this might be due to better survey methods and improved inventories. Plants - no comprehensive list (2006 Vegetation Report lists species by vegetation type only) but regeneration and reduced encroachment indicates diversity maintained and possibly increased. Mammals - 30 species recorded in 2003. Birds - 307 species reported to December 2005³⁴ Additional 4 species recorded by April 2006.</p> <p>2. There is marginal evidence, based on sightings (below), that prey populations are increasing. Prey density measures provided in PIR suggest significant increases but their basis could not be explained to Evaluation Team, nor was it possible to access Management Information System to verify. Prey - Mean sightings per month in 2003/04/05/06: Spotted deer – 332, 511, 531, 403 Barking deer – 8,8,9,10 Sambar – 4,4,7,9 Wild boar – 8,11,14,10</p>						

³¹ Objectives, outputs and objectively verifiable indicators are taken directly from the logical framework, as revised on 13 August 2003. In some instances there is a discrepancy between the later version (23.01.204) of the framework held by NTNC and that held by UNDP (15.10.2003). In such instances, the discrepancy is shown crossed out and replaced *in italics* by the wording in the UNDP version, which is also consistent with wording used in the Project Implementation Report of 7 July 2006.

³² Status at Project Completion is that reported (*verbatim*) in the Project Implementation Report, dated 7 July 2006. It is based on self-assessment.

³³ **H**ighly Satisfactory, **S**atisfactory, **M**arginally Satisfactory, **M**arginally Unsatisfactory, **U**nsatisfactory, **H**ighly Unsatisfactory

OBJECTIVES ¹ Outputs ³¹	Objectively Verifiable Indicators ¹	Status at Project Completion ³² [30 June 2006]	Final Evaluation [April 2007] Evaluation comments and ratings ³³	H	S	M	M	U	H
IMMEDIATE OBJECTIVE 2 Pressure on the resources in the BFC reduced	By end of project: 3. Degraded forest (1100 hectare) of BFC regenerated. 4. Tree densities (91 no./ha) in bottleneck area maintained of BFC restored with regeneration.	3. Status not reported [Evaluation Team]. 4. Natural regeneration study carried out which revealed that the bottleneck area has the highest regeneration with 35,123 species per hectares as compared to northern and southern stratum of BFC (Regeneration study carried out in 2006). NB 35,123 species/ha is impossible [Evaluation Team].	NB BASELINE DATA ARE NOT AVAILABLE FOR COMPARISON PURPOSES. 3. Regeneration is good throughout the Corridor, based on sampling 373 plots (25 km²) along 74.4 km of transects using standard survey techniques³⁵. Mean regeneration density is 30,001 individuals/ha, of which 83% are sal, <i>Shorea robusta</i> . Ten (8%) of plots were devoid of regeneration. 4. Highest regeneration was recorded in northernmost bottleneck of Corridor where density of saplings is fair, just below 2,000 individuals/ha threshold for good status. Note that sapling density decreases from south to north, due either to better original condition of vegetation towards south OR continuing higher pressures inhibiting regeneration towards north. No. individuals of Young, Established and Sapling per ha: South of Highway = 16,430 Y, 10,637 E, 2360 S North of Highway = 16,511 Y, 13,434 E, 1,991 S Bottleneck = 16,800 Y, 16,457 E, 1,866 S						
IMMEDIATE OBJECTIVE 3 Improved and diversified economic options outside BFC provided	By end of project: 5. 3500 households ³⁶ income of CBOs, particularly disadvantaged ³⁷ (Tharus, Chepang, Tamang, Musahar, Bote, Gurung, Magar and all Dalits) people of Padampur, Ratnanagar ward # 8, 9 & 10, Bharatpur # 11 & 12, Gitanagar and Patihani VDCs increased compared to 2002 base line.	6. Sectoral impact study on alternative energy and IGA carried out. 10,931 target population of the project area are involved in diversified income generation activities (mushroom, beekeeping, handicraft, candle making, wool spinning etc) and 41 percent are DAG (sectoral impact study, 2006). NB Figure of 10,931 does not tally with 2006 study, which reports that 1,902	NB Lack of compatible data to compare with 2002 may undermine actual achievements of Project. 5. 9% (307 households comprising 1,902 individuals) of 3,500 households benefited from ten income generating activities amounting to NRs 2 million, with 63% accruing to DAGs³⁸. If 1,491 households that benefited from alternative energy initiatives, which may generate income indirectly by saving on fuel purchases, are included and no household benefited from both types of initiative,³⁹ then 51% of target households may have been reached. In addition, improvements in breeding and veterinary care of livestock may have raised income levels among other households in this target group but relevant data are absent. Even with these inclusions and assumptions, number of beneficiary						

³⁴Adhikari J.N. 2005. *Status of birds in Barandabhar Corridor Forest*. KMTNC/BCC/TRCP. Internal report.

³⁵NEST, 2006. *Natural Regeneration in Barandabhar Corridor Forest, Chitwan, Nepal*. Nucleus for Empowerment Through Skill Transfer, Pokhara. The method used for the survey was based on *HMGN Community Forest Resource Inventory Guideline 2061 BS* (revised). (Definitions: Young = <30 cm height, Established= 30-100 cm; Saplings = >1m height and < 10 cm DBH)

³⁶The target group of some 3,500 households is identified as indigenous groups and ethnic minorities living on the perimeter of the Corridor whose incomes should be raised by the end of the Project. It represents 20% of the target population of 17,795 households (109,316 individuals) within the Project area.

³⁷Note: Among the disadvantaged population, majority (57.2%) are found earning NRs. 20-50K per annum, (18.8%) are earning between NRs. 10-20K, minority population (7.3%) are earning NRs. 5-10K and (4.4%) are earning less than 5K. [41% of target population of 109,316 persons belong to disadvantaged groups.]


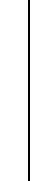



³⁸NEST, 2006. *Sectoral Impact Study on Income Generation Program, Chitwan, Nepal*. Nucleus for Empowerment Through Skill Transfer, Pokhara. [Survey based on sample of 123 individuals from the 307 households that benefited from training by the Project in one of ten income generating activities.]

³⁹NTNC confirmed that no household benefited from more than one Project intervention to improve its economic status.









OBJECTIVES ¹ Outputs ³¹	Objectively Verifiable Indicators ¹	Status at Project Completion ³² [30 June 2006]	Final Evaluation [April 2007] Evaluation comments and ratings ³³	H	S	M	M	U	H
		individuals of the target population of 109,316 have benefited from Project's income generating activities (i.e. 2%) [Evaluation Team].	households probably well short of 3,500 household target. There are no data with which to compare 2002 baseline for mean annual income per household: DAG = NRs 38,578 (N = 3,378) Non-DAG = NRs 47,194 (N= 5,373) Only available information from 2006 survey shows that income generating activities provided additional mean annual income as follows: 182 DAG households = NRs 6,913 125 Non-DAG households = NRs 5,989						
1.1 Management and monitoring of BFC strengthened	<p>OUTPUT INDICATORS By 2002:</p> <p>6. Population and movement monitoring systems of Tiger, Rhino, Prey species, Small mammals and Birds established and operational</p> <p>By 2003:</p> <p>7. Regeneration in Bottleneck forest (Bhojad – Lankaline) area initiated</p> <p>By end of Project:</p> <p>8. Wildlife and Forest monitoring systems at the community level established and operational</p> <p>9. Existing vertical cover (5 %) in the degraded bottleneck area increased by 15%</p> <p>PROCESS INDICATORS By 2003:</p> <p>10. Management plan of BFC developed and forwarded to the concerned agencies for endorsement</p> <p>11. Management Information System (MIS) established and operational in BCC</p> <p>12. Detailed mapping of overall BFC completed</p>	<p>6. Not reported</p> <p>7. 4.8 km of linear distance fencing including 4-community forest with a total of 31.73 km linear distances fencing carried out till date.</p> <p>8. Not reported</p> <p>9. Not reported</p> <p>10. Not reported</p> <p>11. Not reported</p> <p>12. Not reported</p>	<p>6. Monitoring commenced in 2002 for tiger, rhino and birds, and for prey in 2003. Small mammals trialed in 2003 but not continued.</p> <p>7. Regeneration initiated by fencing (4.15 km) the area, beginning in 2001 and finishing in 2005.</p> <p>8. 18 forest guards trained from 15 FUGs in 2002. Monitoring system established in 2002 in 6 community forests but data not held in any information system.</p> <p>9. No survey data</p> <p>10. Management Plan of southern Buffer Zone prepared in March 2005 and endorsed; management plan of northern National Forest prepared in 2005 but not endorsed due to outstanding uncertainties about Protected Forest policy. There is also an integrated <i>Barandabhar Forest Corridor Management Plan</i> (Final Draft, Feb. 2004) awaiting endorsement by all parties.</p> <p>11. Management Information System established in 2004 and operational until end of 2005. Thereafter, not in use following departure of GIS assistant. (know-how lost from Project).</p> <p>12. Vegetation mapping from satellite imaging completed in 2004⁴⁰. Set of GIS maps compiled in 2002⁴¹.</p>						

⁴⁰Monika Bajina, 2004. *Vegetation Classification of Barandabhar Forest Corridor by using Landsat-7 Image*. Report to KMTNC, Tiger Rhino Conservation Project.

⁴¹Madhur Shrestha, 2002. *GIS Accomplishment Report*.

<p>1.2 Key grassland ecosystems effectively managed</p>	<p>OUTPUT INDICATOR By end of project 13. The grassland area transferred to Community Forest User Group (CFUG) in the northern section (approx. 300 hectares) has not decreased</p> <p>PROCESS INDICATORS By 2003: 14. Grassland mapping completed</p> <p>15. Grassland management action plan developed and integrated into BFC management plan</p>	<p>Dropped from project.</p>	<p>13. Grassland output dropped from Project at Tripartite Review in 2003 due to lack of trained man-power and overambitious proposal to replace shiru (<i>Imperata cylindrica</i>) with kans (<i>Saccharum spontaneum</i>).</p> <p>14. Grassland mapping completed in 2003, providing opportunity for future monitoring.</p> <p>15. Not developed (see #13 above)</p>					
<p>1.3 Capable community based local institutional structures ensuring long-term management of natural resources established</p>	<p>OUTPUT INDICATORS By end of project: 16. Conservation oriented local institutions⁴² established and operational in a sustainable manner</p> <p>17. 18 CFUGs (incorporating 14368 HH) legally registered and operating according to their operational plans.</p> <p>PROCESS INDICATORS By the end of 2002: 18. Only 15 CFUGs existed, out of which 3 were handed over. 19. 3 new CFUGs (Thankhola-Jaldevi, Bhimbali and Padampur Women CFs) formed and registered in New Padampur compare to 2002 (0)</p> <p>20. 16 operational plans of CFUGs prepared and submitted for approval</p> <p>By early 2005: 21. All sectors' specific lessons accumulated and documented</p>	<p>16. Not reported.</p> <p>17. Five community forests viz Jankauli, Milijuli, Tikauli, Batulipokhari and Belsahar BZCF operational plan prepared and handed over. 19 Forest user's groups legally registered and operational.</p> <p>18. Not reported.</p> <p>19. Not reported.</p> <p>20. Not reported.</p> <p>21. Not reported.</p>	<p>16. Women's groups, Green Force Clubs, Environment Teachers' Forum and Tharu Traditional Knowledge and Skill Management Group operational (see Outputs 2.2, 3.2, 3.3).</p> <p>17. 19 CFUGs registered, of which 9 handed over to communities for maintaining in accordance with operational plans. 10 CFUGs north of highway awaiting provisions to be developed (via regulations) to enable Protected forest to be handed over to them.</p> <p>18. See #17 above.</p> <p>19. 3 additional CFUGs formed in New Padampur in 2002 to reduce pressure on Barandabhar Forest in bottleneck.</p> <p>20. See #17 above.</p> <p>21. Status reports for most of above community-based organisations compiled in 2006 but majority lack information on lessons learned and long-term sustainability.</p>					

⁴²Institutions include, 2 Veterinary centres, 1 health post, 1 teacher's forum, 1 Tharu Cultural Museum, 2 educational endowment fund committees, 1 IKT committee, 2 networking forums for CBOs, 19 CFUG's forum, 5 IGAs and 2 saving credit cooperatives

<p>2.1 Antipoaching operations strengthened</p>	<p>OUTPUT INDICATORS By end of project: 22. Three APUs (RCNP, BZDC, NF) established and operational compare to 2001 (0)</p> <p>23. 4 Community based anti poaching groups developed at community level compare to 2002 (0)</p> <p>PROCESS INDICATORS By 2002: 24. Community based anti poaching awareness booklet published and distributed</p> <p>25. An endowment fund created for anti poaching operations</p> <p>By 2003 26. Antipoaching endowment fund utilization guidelines developed</p>	<p>22. One anti poaching review meeting held. During 2061/2062, 34 rhino poachers, 3 tiger poachers and traders, 74 timber smugglers and 47 wildlife and forest products collectors were prosecuted. Likewise, during the three months of 2062/063, 23 rhino poachers, 2 tiger poachers, 7 timber smugglers and 7 crocodile poachers were arrested.</p> <p>23. Not reported</p> <p>24. Anti poaching awareness program held for the FUGs of Dakshinkali BZCF and Bandevi Barandabhar BZCF. 63 CFUG members participated in the program.</p> <p>25. Not reported.</p> <p>26. Not reported.</p>	<p>22. 3 anti-poaching units established. Significant numbers of poachers arrested in 2002-2005. Incidences of tiger and timber, but not rhino, poachers arrested declined noticeably in 2005.</p> <p>23. 2 community-based anti-poaching groups established in 2004 in eastern and western part of Corridor, each with 2 operational sub-units of which one is a young people's anti-poaching movement (Youth Awareness Campaign Group) with its own endowment fund.</p> <p>24. Booklet produced in 2002 and distributed.</p> <p>25. NRs 5 million endowment fund (NRs 2,340,000 from TRCP, NRs 2,500,000 from NTNC, NRs 160,000 from BZDC) created in 2003 for Anti-poaching Committee. NRs 50,000 endowment created for Mrigakunja Buffer Zone User Group (TRCP NRS 30,000, BZDC 20,000).</p> <p>26. Anti-poaching endowment fund utilization guidelines developed in 2003.</p>				
<p>2.2 Environmental awareness increased</p>	<p>OUTPUT INDICATORS By end of project: 27. 50% of people in project area (approx 50,000) have listened to the conservation awareness radio program compare to 2001 (0)</p> <p>28. Increased participation of local communities in conservation extension events compare to 2001-0, 2002-1800, 2005-3000.</p> <p>PROCESS INDICATOR By end of project: 29. 35% of schools (#17) establish functional eco-clubs and have</p>	<p>27. 12 episodes of conservation radio program aired through local FM. NB Figure of 12 is incorrect [Evaluation Team].</p> <p>28. 6 conservation awareness camps held at different locations of the project area for increased awareness to the local. 3 units of environmental health camps were held at Padampur, Bachhauli and Kumrose. 154 locals participated in the camp. Exposure visit organized for 68 school teachers and GFC students of 47 GFC schools at BFC in order to increase conservation awareness.</p> <p>29. Network among forest users established and 47 green clubs in 47 government schools of project area</p>	<p>27. 130 episodes of <i>Conservation for Development</i> radio programme broadcasted fortnightly until 2005. Survey by hosting radio station indicated that number of listeners had doubled from 50,000 to 100,000 between 2003 and 2005 within catchment 3-4 times the area of Corridor.</p> <p>28. Environmental Conservation Awareness Workshops held annually: 1800 participants in 2002, 112 in 2003, 48 in 2005.</p> <p>29. Green Force Clubs established in all 47 government schools (100%). Supported by Environment Teachers' Forum, registered as NGO in 2004.</p>				

	undertaken conservation activities compare to 2001 (0)	are operational. 575 meters linear distance of 3 government school premises fenced in order to maintain greenery and hygiene. 60 DAG school going children from 15 GFC schools were provided scholarships through the interest generated from endowment fund established under Child Education Development Program-KA Interaction workshop between school endowment fund committee members held in order to streamline endowment fund interest management guideline.						
3.1 Human induced pressure within BFC reduced by providing alternative livelihood options	<p>OUTPUT INDICATORS By 2003:</p> <p>30. Ecotourism packages (Siraichuli and Barandabhar ecotrek) promoted</p> <p>By end of project:</p> <p>31. Amount of Fuel wood, fodder and timber collection from BFC reduced by 25%, 10%, and 45% respectively compared to 2002 (55956 kg, 150427 kg, 11447 cft)</p> <p>32. Livestock grazing inside BFC reduced by 25% compared to 2002 (7249 cattle per day)</p> <p>33. Primary health services to the local communities extended (three communities – Padampur, Jutpani & Jirauna with 19000 people)</p> <p>34. Number of households engaged in</p>	<p>30. Tourism awareness camp was held for 50 CFUG members of BFC</p> <p>31. Not reported</p> <p>32. Grazing controlled by 73%⁴³.</p> <p>33. Health and sanitation workshop was held at Devnagar and 50 local women exposed to various issues on health and hygiene. Reproductive health camp was held in collaboration with Marie Stopes. Family planning services provided to 27 locals (22 women, 5 men).</p> <p>34. Post harvesting training provided to</p>	<p>30. Community-based ecotourism promoted jointly with Tourism for Rural Poverty Alleviation and Chitwan Tourism Development Committee. Siraichuli, at north end of Corridor, identified as destination because of its ethnic Chepang community and commanding views of Chitwan Valley from Mahabharat. Shelter and viewing tower constructed. No package developed for Barandabhar but some CFUGs have produced brochures supported by the project.</p> <p>31. Number of entry points reduced from 19 in 2002 to 9 in 2006. Fuelwood collection per day via these 9 entry points reduced from 18,347 kg in 2002 to 6,629 kg in 2005 and 9,531 in 2006 (56% reduction on average). Comprehensive data for timber or fodder collection unavailable (1,502 ft³ of timber collected from Bhojad entrance in 2002 but no illegal collection from 2005).</p> <p>32. Cattle grazing per day reduced from 2,863 in 2002 to 1,456 in 2005 and 551 in 2006 (81% reduction by 2006).</p> <p>33. Primary health care extended to Padampur, Jutpani and Jirauna and currently benefits >2,500 persons/year (9,530 beneficiaries in 4 years, 2003-2006).</p> <p>34. 307 households (2% of 17,795 households in Project area; 9%</p>					

⁴³ TRCP comments: “No. of livestock grazing in BCF in 2002 was 4,964 and was reduced to 1304 by 73% in end of 2005 (survey by TRCP staff)”

	<p>alternative livelihood options such as alternative energy, livestock development, ecotourism and IGAs increased to 3500 in comparison employment in diversified IGAs increased to 3500 in comparison to 2001 (0)</p> <p>PROCESS INDICATORS By 2003:</p> <p>35. One veterinary center established and operational in New Padampur compare to 2001 (0)</p> <p>36. One health post construction completed and operational</p> <p>By end of project:</p> <p>37. 15% of households adopting to AE schemes: 206 biogas, 500 improved cooking stoves and 2000 rice husk stoves (Bhuse Chulho) compare to 2002 (11.2%)</p> <p>38. Number of fodder, fuel wood and fruit trees (agro forestry practices) in farmland around BFC increased compare to 2002 (35314, 22129 and 29285)</p> <p>39. Number of improved livestock and stall feeding increased compare to 2002 (8,177)</p>	<p>45 mushroom farmers and a market linkage workshop on mushroom products held. Support worth of NRs 10,000 each provided to rural electrification sub committees formed under Sauraha Tourism Entrepreneurs Group, Jhuwani Community Library, Tharu Cultural Museum, Parsa Water Committee for promotion of rural electrification</p> <p>35. Vaccination program against transferable livestock diseases provided to 2727 cattle (Cows-857, Female buffaloes - 1476, Ox - 162, Male buffaloes - 232).</p> <p>36. Not reported</p> <p>37. .250 husk stoves distributed. In total 2542 tons of firewood saved annually through AE intervention (impact study).</p> <p>38. Distribution of 1900 fuelwood and fodder, 3450 species of fruit and 2500 seedlings of Kurilo (<i>Asparagus recimosa</i>) to CBOs and CFUG members for increased income and availability of forage and fuelwood. 500 kgs. of <i>Jai</i> grass and 9280 fodder species distributed to milk cooperatives to increase availability of forage. NB Species is impossible [Evaluation Team].</p> <p>39. Capacity enhancement training provided to 12 AHW on animal health and interaction workshop between 19 distributed livestock owners held on better livestock husbandry practices. 5 AHW supported with burdizzo castrator and fecal examination microscope in order to enhance the working capacity of AHWs</p>	<p>of 3,500 target households) benefited from ten income generating activities, amounting to NRs 2 million⁴⁴. This represents additional mean annual income as follows: 182 DAG households = NRs 6,913 125 Non-DAG households = NRs 5,989 No. households engaged in ecotourism, fish farming (likely to be relatively few), duck farming and livestock improvements (likely to be large) unknown.</p> <p>NB See #37 for details of alternative energy.</p> <p>35. New Padampur veterinary centre established in 2002 and operational.</p> <p>36. Health post operational by 2003.</p> <p>37. By 2005 1,491 households (8% of 17,795 households in Project area; 43% of 3,500 target households) had benefited from alternative energy provisions(187 biogas plants, 160 improved cooking stoves and 1,144 husk stoves), saving annual consumption of 2.5 million kg⁴⁵ firewood.</p> <p>38. Inadequate data. Total of 114,697 fodder and fuelwood tress and 12,556 fruit seedlings distributed up to 2005.</p> <p>39. Inadequate date. 16,736 livestock vaccinated over 5 years (2001-2005). 1,155 livestock impregnated to improve genetic stocks.</p>					
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⁴⁴NEST, 2006. *Sectoral Impact Study on Income Generation Program, Chitwan, Nepal*. Nucleus for Empowerment Through Skill Transfer, Pokhara. [Survey based on sample of 123 individuals from the 307 households that benefited from training by the Project in one of ten income generating activities.]

⁴⁵NEST, 2006. *Report on Sectoral Impact Study of Alternative Energy Program*. Nucleus for Empowerment Through Skill Transfer, Pokhara.

3.2 Women's and Disadvantaged Groups (DAG's) participation in natural resources management increased through skills enhancement and awareness	OUTPUT INDICATORS By end of project: 40. CBO women/DAG members engaged in diversified IGAs increased	40. Facilitator training for conduction of literacy classes on "Mero Byapar" curriculum was conducted. Skill training on wool spinning was provided to 64 DAG women at Padampur. 50 percent of the target population involved in IGAs and self employment are women (impact study on IGA)	40. The target population (109,316 individuals) comprises 50% women and 41% disadvantaged group members. Women comprised 49% and DAG members 56% of those benefiting from training in income generating activities (i.e. DAG but not women benefitted unduly from such training.)						
	41. Number of women/DAG participation in conservation and development institutions increased	41. Not reported	41. Membership within 19 CFUG executive committees comprises 23% women and 35% DAG, representing 3% increase in women and 7% increase in DAG since 2001.						
	42. BCC training facility upgraded and 1 women training center established	42. Not reported.	42. Biodiversity Conservation Centre training facilities upgraded. Training centre for women not established. ⁴⁶						
	43. At least 40% DAG representation in project activities compare to 2001(0%)	43. Not reported.	43. 35% DAG representation in project activities (N = 11,047).						
	44. At least 50 % of DAG representation in conservation and development institutions compare to 2001 (0)	44. Not reported.	44. see # 41.						
	PROCESS INDICATORS By 2002, 45. 21 saving and credit groups developed/ strengthened and operational	45. Not reported.	45. 19 saving and credit groups formed and operational.						
	By 2004 46. 10 additional saving credit groups developed /strengthened and operational	46. Not reported.	46. 4 additional groups established by 2004.						
	By end of project: 47. All 31 groups oriented towards cooperative management/IGA	47. 2 S/C cooperatives formed. Internal Management training to 23 S/C members, cooperative education training to 18 women members of 6 S/C groups was held as part of capacity building of S/C groups.	47. Total of 32 groups formed, the majority joining cooperatives.						
	48. Two networking forums of functional groups established	48. Not reported.	48. Two cooperatives established, covering areas north and south of the Highway, respectively.						

⁴⁶ NTNC comments: "The local communities wanted the BCC training hall to be upgraded as access more convenient for the majority and BCC would be able to give additional logistic support such as computers, photocopying facilities, etc. The BCC training centre is being used regularly by many community organization free of charge."

3.3 Preservation and application of local indigenous knowledge for biodiversity conservation and income generation	OUTPUT INDICATORS By 2003: 49. Awareness on identification and usage of medicinal plants among CFUG increased 50. One <i>Gurau's</i> clinic operational at Bacchauli By 2004 51. Tharu culture museum operational By end of project: 52. Medicinal plant nursery established by <i>Guraus</i> (local indigenous healers) operational PROCESS INDICATORS By 2003: 53. 1 Chitwan Tharu traditional skill and knowledge management committee registered and operational compare to 2002 (0) 54. 1 Document of medicinal plants utilization practice (200 plants) published compare to 2002 (0)	49. . Not reported. 50. Not reported. 51. Not reported. 52. Over 100 species of medicinal plants used by <i>Tharu</i> healers documented. 53. Not reported. 54. Not reported. Shri Triratna Gompa supported towards fencing and demarcation of premises as part of cultural and natural heritage preservation. NB Not linked to indicator [Evaluation Team].	49. 4 training courses held in 2001/02 (138 participants). 50. <i>Gurau</i> clinic established and operational in 2002/2003 51. Tharu Cultural Museum operational in 2005. 52. Medicinal plant nursery established 53. Chitwan Traditional Knowledge and Skill Management Committee registered in 2002/03 and operational. 54. Tharu medicinal plant document published in 2006 ⁴⁷ .						
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⁴⁷Dangol, D.R. 2006. *Traditional Healing Practices and Medicinal Plants used by Tharu Healers of Chitwan, Nepal*.

EVALUATION OF OUTPUTS

Output 1.1

Management has been strengthened through the development of plans for the Buffer Zone and the forest north of the highway but the latter cannot be implemented until protected forest policy regarding the rights of CFUGs has been determined. Monitoring, critical to informing future management, is being undertaken regularly by NTNC using sound methods. However, little progress has made in establishing this at community level. The present inaccessibility of the Management Information System raises questions about its sustainability in terms of user 'friendliness' and simple design. **Evaluation = MS**

Output 1.2

Not evaluated as dropped from the Project in 2003.

Output 1.3

A wide range of local institutions have been successfully established for purposes of income generation, community forestry, environmental awareness and education in schools, human and livestock health and culture conservation. Most are likely to be sustainable; a few require further strategic development. A major drawback is the current lack of policies for protected forest north of the Highway, which will erode and undermine achievements to date if not addressed soon. **Evaluation = MS**

Output 2.1

Anti-poaching operations have been significantly strengthened through increasing anti-poaching units and creation of community-based anti-poaching units, supported by small amount of income from the endowment fund established by the project. This investment to date, however, appears not to have deterred poachers. In 2006 Barandabhar experienced the highest incidence of rhinoceros killed by poachers in Chitwan District. **Evaluation = U**

Output 2.2

Awareness campaign successfully delivered to all 47 government schools via respective Green Force Clubs and to communities in and beyond Project area via radio. Impacts and awareness more difficult to judge but anecdotal evidence suggests that many within communities are sensitized. **Evaluation = S**

Output 3.1

Use of fuelwood and grazing resources within Barandabhar Forest has been reduced dramatically through provision of alternative energy sources, more efficient means of livestock production (improved breeds and stall feeding) and alternative sources of income generation. Some targets not met and some achievements likely to be underestimated due to absence of 2006 data to compare with baseline survey. **Evaluation = S**

Output 3.2

Women and disadvantaged groups participation in natural resources management has increased but mostly at participatory level, with little representation at executive, decision or policy making levels. **Evaluation = MS**

Output 3.3.

Tharu Cultural Museum and associated Gurau clinic provide cultural complement to natural heritage of Chitwan National Park, adding significantly to Chitwan as a tourist destination. Moreover, it is a 'living' museum with its Gurau clinic that applies medical knowledge and traditions. Currently the Museum receives inadequate income to provide a fair wage to its two female guides and the rest of the establishment relies on volunteer labour. **Evaluation = S, with reservations about its future sustainability**

